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SPLANCHNICECTOMY FOR ESSENTIAL HYPERTENSION

RESULTS IN 1,266 CASES

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Hypertensive cardiovascular disease remains one of the foremost problems facing medicine today. It has been estimated that one-fourth of the adult population of this country has high blood pressure [1] and that the complications of this condition account for more deaths annually than does cancer. Hypertension is of particular importance because it is responsible for many deaths and much premature disability in young and middle-aged persons. It is highly desirable, therefore, to lower the mortality for such a disease.

Many forms of therapy have been used in an effort to control hypertension. The principal ones may be classified under three headings: (1) diets low in sodium and fat, (2) drugs with a hypotensive or sedative effect, and (3) surgery. The form of surgical therapy that has been used most extensively is intervention on the sympathetic nervous system. There are many data in the literature concerning the short-term effects of various forms of therapy on blood pressure levels, the cardiovascular system, and symptoms. The important point, however, is the effect of a particular form of therapy on life expectancy, expressed as mortality and survival rate, regardless of its effect on blood pressure. On this point there is a paucity of data in the literature. Recent reports by one of us (R. H. S.) have emphasized this concept.[2] It is obvious that, to evaluate prognosis in a statistically significant fashion, one must follow large numbers of patients for long periods of time. For evaluation of surgical therapy, a comparable control series of patients treated otherwise, or untreated, must be available for comparison. The control patients must be studied and classified in exactly the same fashion as the surgical patients.

Since 1938, when thoracolumbar splanchnicectomy was first introduced, we have studied about 3,500 hypertensive patients. Some 2,400 of these patients have had splanchnicectomy performed, and the others have been treated medically. Of the surgical patients operated on prior to Dec. 31, 1947, 1,266 have been followed from 5 to 14 years. During the same period 467 of the patients who were studied but were not operated on have been followed from 5 to 11 years. These patients were offered surgery, but for various reasons they declined. Since data from the literature were not wholly satisfactory for comparison with our surgical series, these 467 patients served as a control series. The purpose of this article is to report the effect of thoracolumbar splanchnicectomy on the mortality and survival rates of these 1,266 patients and to compare such data with those of the 467 medically treated control patients.

There are certain characteristics of our group of patients that should be clearly pointed out. We are aware of the fact that many patients with hypertension appear to tolerate it quite well and live long, useful lives without any treatment whatsoever. On the other hand, the patients who have been referred to us had unusually severe forms of the disorder, they had not improved with current forms of therapy, or their status indicated an extremely poor prognosis. All of the patients reported on, both surgical and medical, had persistent, not intermittent, hypertension, i. e., the blood pressure when the patient was in a horizontal position was 140/90 mm. Hg or more, both when he was ambulatory and after two days of bed rest in the hospital. They had, therefore, advanced through the earlier stages of the natural history of hypertension, namely, hyperreactivity of the blood pressure without hypertension and intermittent hypertension. The vast majority when first seen had evident vascular disease, manifested either in the eyes, heart, kidneys, or brain. They were, therefore, already in the stage in which

Mr. John Alman of Boston University made the statistical analyses for this study.
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1. Allen, E. V.: Symposium on the Treatment of Essential Hypertension: Introduction, Proc Staff Meet., Mayo Clin. **27**: 473-474 (Nov. 19) 1952.
2. (*a*) Smithwick, R. H.: Hypertensive Cardiovascular Disease: Effect of Thoracolumbar Splanchnicectomy on Mortality and Survival Rates, J. A. M. A. **147**: 1611-1615 (Dec. 22) 1951; (*b*) Surgical Measures in Hypertension, American Lectures in Surgery, Monograph 61, Springfield, Ill., Charles C Thomas, Publisher, 1951.

cardiovascular complications of hypertension had begun to occur. That our patients are representative of the severer forms of hypertensive disease is also evident from the survival curves of these patients when compared with a survival curve of the normal population of similar age and sex distribution (fig. 1).

Another point of importance is that all of the patients under consideration were first seen or operated on at a time when none of the more recently introduced hypo-

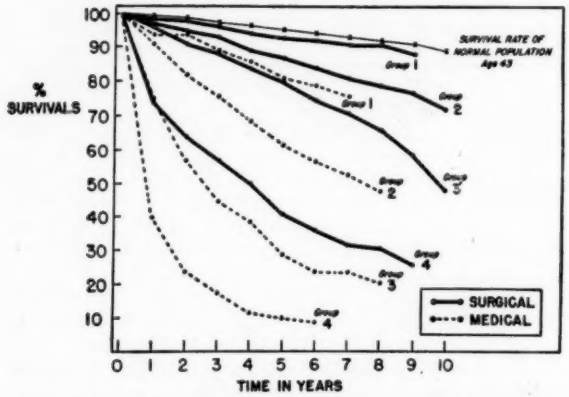

Fig. 1.—Survival curves for 1,266 surgically and 467 medically treated hypertensive patients. These curves have been constructed using the actuarial method. All patients were followed for at least five years and some for as long as 14 years, but the curves have not been carried beyond the 10 year mark in any case, because either the number of cases is too small to be significant or no further deaths occurred.

tensive drugs or low sodium diets were available or in vogue. The surgical patients had no additional therapy prescribed on discharge from the hospital. Most of them have had no additional therapy, though in recent years some have had diets and drugs prescribed as necessary. The medical patients have, of course, had all available forms of current therapy. The results reported in this communication have not been influenced materially by "medical forms of sympathectomy" resulting from the use of adrenergic blocking drugs. It will be many years before it can be determined whether treatment by drugs of this general nature will be as effective as surgical treatment has been shown to be in significantly increasing the life expectancy of patients with the severer forms of hypertensive cardiovascular disease. It appears that in the severest cases a combination of all forms of treatment—diet, drugs, and surgery—gives the best results. In the future more patients will have dietary or drug therapy after surgery, but, as a rule, such additional therapy need not be as drastic as is the case when one depends on diet or drugs alone. It will, nevertheless, still be possible to compare surgical and medical cases, since the variable factor between otherwise comparable groups will be splanchnicectomy.

METHOD OF STUDY

It was first pointed out by Keith, Wagener, and Barker [3] that the prognosis for a hypertensive patient varies according to the status of his cardiovascular system when first examined. Unless patients with a similar degree of hypertension and of cardiovascular involvement are placed in comparable groups, no basis for comparison of results exists. This has been pointed out in a previous article,[2a] in which it was shown that mortality for different groups of unoperated patients reported in the literature varies tremendously, from 17 to 91%. We have, therefore, adopted a plan designed to control as many of the variable factors as possible, in an attempt to make the patient material in each group as comparable as possible. This plan is the best we have been able to devise to deal with the present number of cases. As the number of cases becomes larger, more variable factors can be controlled and groups can be defined more precisely.

After a careful study of the cardiovascular system as a whole, a numerical value is assigned to various factors having a bearing on prognosis. These are summarized in table 1. The numerical values for each factor present are totaled, and this gives the numerical grade for the patient. Two examples of how to determine the numerical grade are given at the bottom of table 1. If the numerical grade is less than 4 the patient will be in group 1 or 2. If the numerical grade is 4 or more the patient will be in group 3 or 4. The additional factors that determine the exact group of the patient are given in table 2. Thus the patients in group 1 have persistently elevated blood pressure, with minimal or no eyeground changes and no abnormalities in the cerebral, cardiac, or renal areas. Those in the other groups have increasing amounts of cardiovascular dis-

TABLE 1.—*Numerical Value of Various Factors That Influence Prognosis*

	Numerical Value of Each Factor
Cerebrovascular accident with or without minor residual	1
Abnormal electrocardiogram	1
Enlarged heart	1
Impending congestive failure	1
Phenolsulfonphthalein excretion, less than 25% in 15 min. or less than 60% in 2 hr.	1
Age 50 or over	1
Mild angina	1
Cerebrovascular accident, with residual *	2
Frank congestive failure, moderate angina	2
Phenolsulfonphthalein excretion, less than 20% in 15 min.	2
Unsatisfactory response to sedation	2
Phenolsulfonphthalein excretion, less than 15% in 15 min.	3
Nitrogen retention	4

* Cerebral deterioration or definite involvement of arm and/or leg.

Example 1		
Abnormal electrocardiogram	1	
Cerebrovascular accident without residual	1	
Phenolsulfonphthalein excretion, 20% in 15 min.	1	
Total	3	= Numerical grade of patient with hypertension
Example 2		
Abnormal electrocardiogram	1	
Enlarged heart	1	
Phenolsulfonphthalein excretion, 10% in 15 min.	3	
Total	5	= Numerical grade of patient with hypertension

ease. A sedative test is done on all patients. Three grains (180 mg.) of amobarbital (Amytal) sodium are given by mouth at 7, 8, and again at 9:00 p.m. Readings of blood pressure are taken every hour from 7:00 p.m. to 7:00 a.m. The lowest reading of diastolic pressure during the sedative test is taken to be the response to sedation. To be regarded as satisfactory, the diastolic level during the sedative test should fall to 90 mm. Hg or less in patients with resting levels between 100 and 119 mm. Hg.

3. Keith, N. M.; Wagener, H. P., and Barker, N. W.: Some Different Types of Essential Hypertension: Their Course and Prognosis, Am. J. M. Sc. **197**: 332-343 (March) 1939.

For patients with resting levels between 120 and 139 mm. Hg the response to sedation should be a fall to 100 mm. Hg or less. For those with resting levels of 140 mm. Hg or more, the diastolic level should fall to 110 mm. Hg or less. Otherwise, the response to sedation is regarded as unsatisfactory. Patients in both categories, surgical and medical, have been studied and classified in exactly the same fashion and can therefore be compared with respect to survival rates and mortality within the four groups.

TABLE 2.—*Classification of Hypertensive Patients*

Group	Numerical Grade	Other Factors
1	Less than 4	Eyegrounds grade 0 or 1 * No changes in cerebral, cardiac, or renal areas
2	Less than 4	Eyegrounds grade 0 or 1, with changes in cerebral, cardiac, and/or renal areas. Eyegrounds grade 2, 3, or 4 with or without changes in cerebral, cardiac, or renal areas *
3	4 or more	Resting diastolic level below 140 mm. Hg. Changes are present in cerebral, cardiac, and/or renal areas, but they do not include the following: Cerebrovascular accident, with marked residual Frank congestive failure Phenolsulfonphthalein excretion, below 15% in 15 minutes, associated with a poor response to sedation
4	4 or more	Resting diastolic blood pressure below 140 mm. Hg combined with one or more of the following: Cerebrovascular accident, with marked residual Frank congestive failure Phenolsulfonphthalein excretion, below 15% in 15 minutes, combined with a poor response to sedation Patients with a resting diastolic level of 140 mm. Hg or more

* Eyegrounds are graded according to the criteria of Keith, Wagener, and Barker.

RESULTS

Control Series.—The control series consists of 467 patients. This represents an 88% five year follow-up of the total patients originally studied. Sixty-one per cent were men and 39% women. The average age of this group was 45 years. These patients were offered surgery, but financial, personal, or reasons other than those related to the severity of the disease kept them from being operated on. In the early days of splanchnicectomy, before it was possible to exercise any degree of selection, all patients who were considered capable of surviving the operation were offered surgery. The mortality for the four groups in this series are given in table 3. Survival curves for these same patients are shown in figure 1. These survival curves have been constructed using the actuarial method, as described by Berkson and Gage.[4]

Surgical Series.—The surgical series consists of 1,266 patients. This represents a 90% five year follow-up of the total patients originally operated on. Forty-seven per cent were men and 53% women. The average age of this group was 42 years. Surgery consisted of thoracolumbar splanchnicectomy, carried out in two stages 10 days apart, through the beds of the 12th or the 11th and 12th ribs, using a retropleural, retroperitoneal, transdiaphragmatic approach.[2b] The sympathetic trunks were removed from the eight or ninth dorsal vertebra through the first or second lumbar vertebra inclusive, and the great splanchnic nerves were removed from the celiac ganglion to the midthoracic level. The adrenal glands, renal arteries, and kidneys were inspected, and renal biopsies were taken in all cases. The operative mortality has been low, ranging from 0% in group 1 to 11% in group 4, with an over-all operative mortality of 2.5%. The mortalities for the surgical series are given in table 3, where they are compared with those of the control series. The same data are presented in the form of survival curves in figure 1.

It is evident from a study of the data that the mortalities in all four surgical groups are significantly lower than in the corresponding medical groups. This is particularly true for groups 2 and 3, where the differences are quite striking and are highly significant. The difference is significant in group 1, but the number of cases in the medical group is still relatively small. More cases and a longer follow-up are needed before final evaluation of this group can be made. The difference between the group 4 cases is also very significant, but the eventual mortality is still very high. These differences are brought out in a striking fashion in figure 1, where the survival curves are compared. In the same figure is a survival curve of the normal population of similar age and sex distribution. The high mortality imposed by hypertensive cardiovascular disease is clearly shown and emphasizes the severity of the disease in the patients with whom we are dealing.

Although the important factor to be considered in evaluation of any form of treatment for hypertension is its influence on the mortality and the survival rate, the effect of treatment on the actual level of blood pressure is of considerable interest. In fact, it appears that blood pressure lowering in hypertension is desirable if it can be accomplished. It is fairly well established that in most cases the lowering of blood pressure in hypertensive patients is not harmful, providing such lowering is not excessive. The prognosis for patients whose blood pressure is lowered after splanchnicectomy is significantly better than for those whose blood pressure is not lowered by operation. Both of these groups, however, exhibit an improved prognosis when compared with the medical control series.[2b] It appears, therefore, that the outlook for hypertensive patients can be improved by splanchnicectomy even if the basal blood pressure levels are not significantly lowered postoperatively. Our data show that 45% of living operated patients have a significant lowering of basal blood pressure levels in the early years (1 to 5) after splanchnicectomy, and 55% have no change or show an increase in blood pressure.

TABLE 3.—*Mortality for Medically and Surgically Treated Hypertensive Patients**

Group	Medical Series		Surgical Series	
	No. of Cases	Mortality at 5 Yr.	No. of Cases	Mortality at 5 Yr.
1	62	19%	158	8%
2	200	38%	735	13%
3	108	71%	244	20%
4	97	90%	129	59%
Total	467	54%	1,266	19%

Statistical analysis of the comparative five year mortalities between the medical and surgical groups is as follows:

Group	Chi²	p	Comment
1	4.92	0.03	Significant
2	60.6	< 0.001	Highly significant
3	83.2	< 0.001	Highly significant
4	24.6	< 0.001	Highly significant

* Yates correction used throughout.

4. Berkson, J., and Gage, R. P.: Calculation of Survival Rates for Cancer, Proc. Staff Meet., Mayo Clin. 25: 270-286 (May 24) 1950.

To illustrate the effects of splanchnicectomy, the following cases are reported.

CASE 1.—A 31-year-old man had an abnormal electrocardiogram, an enlarged heart, and congestive failure when examined prior to operation. His resting horizontal blood pressure was 160/122 mm. Hg. At examination 10 years after operation, his electrocardiogram was the same, his heart was normal in size, and there was no evidence of congestive failure. His eyegrounds showed minimal arteriovenous compression. The blood pressure (ambulatory) was 132/80 mm. Hg. This patient is an example of improvement in blood pressure and in cardiovascular status 10 years after splanchnicectomy (fig. 2).

CASE 2.—A 48-year-old man had hemorrhages, exudates, and papilledema in his eyegrounds, an abnormal electrocardiogram, markedly enlarged heart, and severe congestive failure when examined prior to operation. His resting horizontal blood pressure was 204/104 mm. Hg. When examined seven and a half years postoperatively, his eyegrounds showed only arteriovenous compression and his heart was normal in all respects. His renal function showed slight evidence of impairment. His blood pressure (ambulatory) was 188/114 mm. Hg. This patient is an example of the marked improvement that may follow splanchnicectomy even though the basal blood pressure level was apparently not changed.

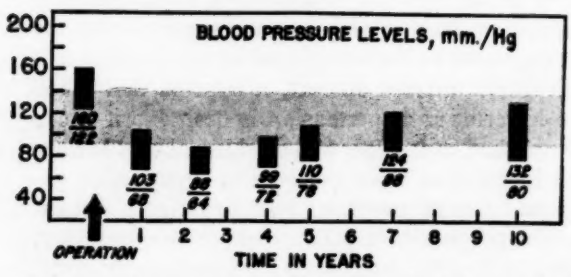

Fig. 2.—Blood pressure levels 10 years after splanchnicectomy in patient in case 1.

SELECTION OF THERAPY FOR HYPERTENSIVE PATIENTS

As pointed out earlier in this report, there are three chief modes of therapy currently available for the management of hypertensive cardiovascular disease: (1) surgery, (2) diet, and (3) drugs. In order to select the proper type of treatment for each case, it is important to evaluate the level of the blood pressure and the amount of cardiovascular disease present. Placing patients into the four groups given enables one to do this. The mortalities and survival rates for these groups then serve as a basis for selection of therapy. It should be reemphasized that only patients with persistent hypertension are meant. If the patient falls into group 1, diet and drugs comprise the usual treatment. The results following splanchnicectomy, while showing a lower long-term mortality, are not sufficiently superior to the medical results as yet to allow us to recommend surgery routinely in all such cases. This is particularly true for female patients, who appear to do well on medical therapy. It may be that group 1 men, however, should have surgery, since these patients have a considerably poorer prognosis when treated medically. Other group 1 patients who may be operated on are young patients with high resting diastolic (above 110 mm. Hg) blood pressure levels, those with intractable symptoms, those with a history of toxemia or other complications of pregnancy associated with hypertension who desire more children, and those patients who for various reasons are unable to follow a medical regimen. If the patient falls into group 2 or 3, we believe that surgery in the form of splanchnicectomy is the treatment of first choice and should be recommended. In refractory group 2 and 3 cases diet and drug therapy may have to be added to surgery to achieve maximum benefit. In group 4 cases surgery may be recommended, provided renal function is adequate and if the patient is a satisfactory surgical risk. Severe kidney damage, as indicated by persistent evidence of nitrogen retention, is the one finding that positively contraindicates splanchnicectomy in the more advanced stages of hypertensive cardiovascular disease. Although the mortality after surgery is much improved, the eventual mortality for group 4 cases is still very high. It is our belief that surgical treatment should be employed before patients are allowed to progress to group 4, if the greatest number of worthwhile results is to be obtained. At the present time the only reliable basis for the selection of patients for splanchnicectomy is the effect that surgical treatment is known to have on the life expectancy of patients in each of our four groups.

SUMMARY

A method of classifying hypertensive patients, depending on the level of blood pressure and the amount of cardiovascular disease present when first studied, is outlined. The mortalities and survival rates for 1,266 hypertensive patients treated by thoracolumbar splanchnicectomy and for 467 medically treated control patients are compared. The results following surgery are superior in all four groups (Smithwick classification), but the best results are obtained in patients who fall into groups 2 and 3. We recommend splanchnicectomy as the treatment of first choice in such cases. Patients should be operated on before they fall into group 4, since the eventual mortality for this group is high regardless of the therapy employed. An outline of our present method of selection of therapy for hypertensive patients is given, based on the known effect of surgical treatment on prognosis.

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Treatment of the Thyroid Storm.—Thyroid crisis or storm represents a dramatic medical emergency. This condition was formerly encountered occasionally postoperatively when patients were inadequately prepared for surgery. It is now seen rarely in debilitated thyrotoxic patients who have been untreated for long periods and are in poor nutritional status. Treatment is begun with the application of cold compresses or ice to the entire body, including cool water enemas if marked hyperthermia is present. Demerol or morphine is used for control of severe restlessness. The patient is placed in a cold oxygen tent. Sodium iodide, 1 gram, in 1,000 cc. of 5% glucose solution is given intravenously. Sodium iodide, 500 mg., may also be given by enema. Antithyroid therapy with methylthiouracil, 600 mg., is begun immediately, then 200 mg. every six hours. Tapazole may be used in one-tenth this dosage. Sodium or potassium iodide should be continued at a high dosage level until recovery. Aqueous adrenal cortical extract should be administered as in the treatment of addisonian crisis. Further experience with cortisone or hydrocortisone is necessary for evaluation of these drugs.—M. G. Wohl, M.D., C. R. Shuman, M.D., and R. Robbins, M.D., Current Treatment of Toxic Goiter, *Medical Clinics of North America*, July, 1953.

FOLLOW-UP STUDY IN SEVENTY-FIVE CASES OF NONPARALYTIC POLIOMYELITIS

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and
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Recent increases in the over-all incidence of poliomyelitis have prompted early diagnosis and hospitalization in suspected cases. This has led to the detection of a greater number of the so-called nonparalytic cases. With the advent of passive immunization with gamma globulin, as developed by Hammon and co-workers,[1] an even greater percentage of abortive and nonparalytic cases may be anticipated.

Nonparalytic poliomyelitis, as interpreted in this study, refers to cases diagnosed by clinical and laboratory findings in which the patients, at the time of discharge from the hospital, showed no evidence of muscular weakness. During routine follow-up examination of these patients in the outpatient department of Grasslands Hospital, a surprising number showed various sequelae. As a result of these casual findings, we were prompted to carry out a formal study of a large group of patients who were discharged from the hospital during the period 1947 to 1951 and who showed no muscular weakness at the time of release.

METHOD AND MATERIAL

The following procedure was adopted for the carrying out of this study. Each patient, with a parent whenever necessary, was given an initial interview, and a detailed post hospitalization history was obtained, including subjective complaints that might have been associated with poliomyelitis. Each patient was then given a complete muscle test by the chief physical therapist and afterward was thoroughly screened again by one of us. In addition to muscular abnormalities, the patients were checked for structural or postural abnormalities, including atrophy of the extremities as measured by accepted techniques (circumferences at various levels). A difference between two extremities in circumference at the same level was not in itself taken to be indicative of involvement due to poliomyelitis unless it was associated with muscular weakness. A total of 75 patients were examined, of whom 51 were children (under age 13) and 24 were adults.

RESULTS

The results of this study are shown in the following tabulation:

Total no. of patients examined	75
No. with subsequent muscular weakness	29
Percentage with subsequent muscular weakness	38.6%
Distribution of muscular weakness	
Quadriceps	11
Gastrocnemius	10
Sternocleidomastoid	4
Abdominal muscles	3
Hamstrings	3
Deltoid	2
Hip extensors	2
Triceps	1
Biceps	1
Hip flexors	1
Rhomboids	1
Anterior tibial	1

Muscular weakness was noted in 29 patients, or 38.6% of the total number of patients examined, at the time of the follow-up examination. The major segments involved were the weight bearing muscles, principally the calf and quadriceps groups. This may be explainable by the fact that all of these patients had been on only a ward activity level at the time of discharge from the hospital; therefore, there had been no adequate criterion to determine the endurance and fatigability of the weight bearing muscle groups, since these patients had not been performing their normal daily play or occupational activities.

Of the 29 patients who showed muscular weakness, 3 had some residual spasm at the time of the follow-up examination. There was no correlation between the duration of spasm in the hospital and the subsequent development of weakness. Twenty-three (30.6%) of the 75 patients examined had shown deep tendon reflex differences of varied patterns during the acute phase of the disease. Loss or diminution of tendon reflexes was not related in any way to the eventual onset of or site of muscular weakness. Seven (24.1%) of the 29 patients with subsequent weakness had symptoms referable to the segment in which the weakness was localized. A surprising number of patients (42.7%) had subjective manifestations, consisting of increased fatigability. Evidence of emotional disturbances of various types, including irritability, instability, and stuttering, were manifest in 24% of these patients. In children, increased irritability was the predominent complaint of the parents.

COMMENT

While 38.6% of a group of 75 patients with nonparalytic poliomyelitis, examined one and one-half to six years after the onset of the disease, showed weakness in one or more muscles, this is not an indication that the present methods of muscle testing should be discarded. In no instance in the above series was the muscular weakness extensive enough to appreciably interfere with the normal activities of the patient.

In the screening of mild poliomyelitis cases, either during the patients' hospital stay or during their treatment at home the diagnosis of nonparalytic poliomyelitis should not be made on the basis of a single examination. The performance of multiple, staged tests based on the general condition and activity level of the patient is pre-

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Director of Physical Medicine and Rehabilitation (Dr. Moskowitz) and affiliated resident in Physical Medicine and Rehabilitation (Dr. Kaplan), Grasslands Hospital, Valhalla, N. Y., and Fellow, Department of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center and United States Public Health Service (Dr. Kaplan).

Miss Katherine Andrews, Chief Physical Therapist, Grasslands Hospital, gave technical assistance in this study.

1. Hammon, W. M.; Coriell, L. L.; Wehrle, P. F., and Stokes, J.: Evaluation of Red Cross Gamma Globulin as a Prophylactic Agent for Poliomyelitis, J. A. M. A. **151**: 1272-1285 (April 11) 1953.

ferable. During the acute phase, in the presence of spasm, accurate performance of a satisfactory muscle test is impossible. As the acute manifestations subside, the patient is permitted a progressive increase of activities, and their effect on muscular fatigability, especially in the weight bearing groups of the lower extremities, should be determined. Actually, the diminished work tolerance in a muscle that is only mildly involved can be made manifest only after strenuous activity. Such a situation does not prevail during the early convalescent stage of the disease. In the presence of minimal weakness, variations occur in the muscle test, depending on the activity level of the patient, and would be evident, for example, in the quadriceps group in a child after two to three hours of play or in the gastrocnemius group in a policeman after completion of an eight hour shift.

In our series, the average hospital stay of the children was 24.4 days and of the adults, 14.4 days. There was no relationship between the length of hospital stay and subsequent appearance of muscular weakness. In addition, there was no correlation between the time of ambulation of these patients and the subsequent development of muscular weakness. It is not necessary to increase the hospital stay of a patient with the nonparalytic disease, provided the physician is alert to the possibility of the presence of undetected muscular weakness. As a matter of fact, during the 1952 season, 37 cases of nonparalytic spinal involvement were seen at Grasslands Hospital. The average stay for the adults was 10.6 days and for the children, 14.7 days. Each patient returned for a follow-up examination about one month after discharge, and no undetected muscular weakness was noted at these visits. Each patient in this group in whom there was spasm received hot packs routinely and was permitted to get out of bed as soon as he had been afebrile for five days and had no residual muscle spasm. These patients were closely supervised when allowed to become ambulant as a further check for muscular weakness and were cautioned to carry on at a restricted activity level at home until they returned for the follow-up examination.

SUMMARY

Of 75 patients with nonparalytic poliomyelitis examined one and one-half to six years after the onset of the illness, 38.6% were found to have minimal weakness in one or more muscle groups. Seven (24.1%) of these patients had symptoms referable to the site of muscular weakness. Increased general fatigability was complained of by 42.7% of the 75 patients examined, and 24% had evidences of emotional disturbances, such as irriability, instability, and stuttering.

CONCLUSIONS

1. The diagnosis of nonparalytic poliomyelitis should be made only after complete muscle testing has been done after the patient has resumed his or her normal physical activity level.

2. The average hospital stay of the patient with nonparalytic poliomyelitis can be significantly reduced, provided the patient is free of spasm and has had multiple screenings for muscular weakness.

3. In the absence of muscle spasm and respiratory difficulties, early mobilization under adequate medical supervision of the afebrile patient with nonparalytic poliomyelitis has no adverse effect on the eventual functional recovery of the patient.

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NEW YORK CITY PLAN FOR CARE OF POLIOMYELITIS PATIENTS IN RESPIRATORS

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The problem of patients with poliomyelitis who need care in a respirator is becoming a matter of concern to those interested in the field of long-term illness or chronic disease. The basic problems are, of course, the increase of fundamental understanding of the epidemiology of poliomyelitis and the development of methods of preventing the disease. Considerable progress is being made in these areas. There is, nevertheless, the immediate problem of adequate care of poliomyelitis patients. Public health officials, hospital administrators, and physicians have paid particular attention to the care of poliomyelitis patients in the acute stage of illness and to the rehabilitation of those patients who are orthopedically handicapped. The problems of those patients who need care in a respirator seem to have received less attention, although a few communities are attempting to develop communitywide programs for such patients. According to information from the National Foundation for Infantile Paralysis, there are approximately 1,000 patients in the country who require care in a respirator and there are seven respirator centers that can accommodate about 230 of these patients.[1] There is also evidence of interest in the development of additional centers, but no report of a community planning for the care of its own patients has been found in the literature. The materials presented in this report pose a few of the questions that arise when a community program for patients with poliomyelitis who require care in respirators is envisaged, and a few of the answers found in a recent study of the situation in New York City are given. A few of the questions to be answered are: 1. How many patients in the community will need care in a respirator? 2. What are the problems in the care now given to such patients in the community? 3. How much will adequate care cost?

From the Bureau for Handicapped Children, New York City Department of Health.

Presented at the Section on Pediatrics, New York Academy of Medicine, May 14, 1953.

1. Landauer, K.: Personal communication to the authors.

INCIDENCE AND PREVALENCE

During the past 36 years in New York City, 29,002 cases of poliomyelitis have been reported to the New York City Department of Health, an average of 805.6 cases each year. In 29 of the 36 years (80%), less than 800 cases were reported. More than 1,000 cases per year occurred in 1916, 1931, 1935, 1944, 1949, and 1950. The percentage of hospitalized poliomyelitis patients who need respirator care has not been uniform. For example, in 1949 and 1951, hospitals in New York City reported that the percentage of patients requiring respirator care varied from 5 to 10%. This percentage obviously depends on several factors: (1) the indications for the use of a respirator determined by the medical staff in each hospital, (2) the care with which each patient's condition is evaluated against such indications, and (3) the severity of the disease. In planning adequate facilities one might assume that 8% of those patients hospitalized for poliomyelitis will need respirator care; thus, in New York City, it is calculated that, on an average, about 64 persons might need respirator care in any one year (8% of 800), exclusive of epidemic years.

In 1951, a nonepidemic year in New York City, 548 cases of poliomyelitis were reported to the New York City Department of Health. Observations in hospitals in the city during the latter part of December, 1951, and the early part of January, 1952, revealed a total of 19 respirator patients in five hospitals. The largest number of patients in any one hospital was nine; the smallest number was one. At the same time, it was known that at least five patients in respirators were being cared for at home. At least another eight had been transferred out of the city to the nearest respirator center, approximately 250 miles away, and additional patients had also been transferred to another respirator center in the East.

CARE AVAILABLE

In planning a community program for any type of patients, including those requiring respirator care, one of the first questions asked is "How good is the care now available?" Many assume that, because there are outstanding medical centers in large urban areas, the care available there is far above the usual standards. Our observations have not uniformly substantiated this assumption. The problems found on visits by a pediatrician and a hospital nursing consultant to these hospitals included lack of adequate physical facilities, of continuous medical supervision, of qualified nursing supervision, and of an adequate rehabilitation program.

An analysis of the five hospitals that provided care for respirator poliomyelitis patients in New York City in 1951 and 1952 revealed the following facts. Of the five hospitals, the pediatric staff was in charge in three and the neurology staff in one. In the fifth hospital, respirator patients were cared for by three separate services in the hospitals, pediatric, neurology, and medicine, each with its own space, physical set-up, equipment, and medical and nursing personnel. Obviously this plan meant a dispersion of nursing staff and supervision and some duplication of facilities and equipment. All the hospitals, are approved for training pediatric interns and residents by the Council on Medical Education and Hospitals of the American Medical Association, three for training in orthopedic surgery, and two for training in physical medicine and rehabilitation. Furthermore, of the five hospitals, three did not have or provide a physiatrist for consultation and supervision of the patients for the purposes of physical therapy and rehabilitation, and two did not have an orthopedist. Three of the hospitals provided physical therapy and occupational therapy staffs that could be considered adequate. The fourth hospital had some therapists but too few to give adequate care to all of the patients who needed it. The fifth hospital provided neither physical therapy nor occupational therapy. To illustrate the problem in terms of patient care, one hospital without such personnel had three poliomyelitis patients on the day of the visit. Two were in respirators. The three patients had been hospitalized for approximately five months each; none had received any physical therapy during this period of time. One of the patients had developed contractures of the arms at the elbows during this period.

Recreational staff was provided in one of the five hospitals. Most of the recreational activities in the other four hospitals consisted of watching television programs. In one hospital, the recreational program consisted of a private duty nurse, employed at the rate of $12 for each eight hours of duty, who read to the patient. With appropriate recreational activities, earlier rehabilitation might have been possible.

Many problems in the nursing care of patients were observed. In three hospitals, the regular hospital nursing staff cared for these patients; in another, nurses on a private duty basis were employed at a cost of $36 per patient for 24 hours; in the fifth, a combination of regular staff plus private duty nurses was used. Waste of nursing staff and time was evident. The illustration of the private duty nurse reading to the patient is but one example. In other instances, nurses carried out procedures such as autoclaving letters written by patients and covering patients with mosquito netting. A supervising nurse in one hospital expressed the opinion that the employment of private duty nurses on a daily basis was not the solution to the care of respirator patients because many of these nurses had not seen a respirator or a respirator patient in a good many years, if ever, and because private duty nurses received more salary than general hospital staff nurses and that created friction between the two groups.

Other nursing problems are illustrated by the situation in one hospital that had nine respirator patients, eight in two wards in one building and the ninth in another building. For the eight patients, there was no registered nurse on duty from 12 midnight until 8 a. m.; from 3 p. m. to 12 midnight there was one registered nurse who covered the two floors. These patients were cared for entirely by nonprofessional nursing personnel without nursing supervision. The ninth patient was cared for by student nurses and attendants only.

Similar problems existed in other areas of patient care also. Four of the hospitals provided a teaching staff for educational activities so that the children could continue their schooling during the period of hospitalization. The fifth hospital had no such teaching staff; the family of one child demanded that their child who had been there six months be transferred to the nearest respirator center where teaching and other services could be provided.

Four hospitals had facilities for bronchoscopy and tracheotomy and had a trained staff on call to perform these emergency procedures. The fifth hospital had a trained staff on call, but no facilities or equipment in the building in which the respirator patients were. It is evident that, if these services are needed, they are usually emergencies and, therefore, must be readily available.

Three hospitals provided psychiatric help for patients; two did not. Because of the psychological factors involved in caring for handicapped patients and in weaning patients from respirators, psychiatric consultation is certainly important in their rehabilitation.

Three of the hospitals transferred patients to the nearest respirator center 250 miles away. Reasons given for the transfer of these patients were: (1) recognition by the staff of the hospital that they were not prepared, equipped, or staffed to provide adequate rehabilitation for their patients; (2) requests by the families of patients because of some dissatisfaction with the care given; and (3) reluctance on the part of some of the hospitals to provide the long-term care that might be necessary.

COST OF CARE

The care of patients in respirators is costly. Skillful nursing, oxygen, and ancillary therapy services are items that contribute appreciably to cost. Cost figures could not be obtained from the hospitals visited. Even if they had been secured, they would probably have been of limited value because of two expensive practices, employment of private duty nurses at $36 a day and excessive use of oxygen in one hospital in which all respirator patients there received oxygen routinely and continuously. Data obtained from five respirator centers throughout the country indicate daily costs ranging from $18 to $23.

Data on the length of hospital stay for respirator poliomyelitis patients are even more difficult to obtain or evaluate. They, of course, may be directly dependent on each hospital's ability to evaluate the patient's condition and its ability to provide the necessary physical therapy and psychiatric services to wean the patient from the respirator as quickly as possible. No reliable data on length of stay were obtainable from observations in New York City hospitals.

COMMUNITY PLAN

When all of the facts were put together, it became evident that a community plan was necessary, if respirator patients were to receive the quality of care necessary for their rehabilitation by a method most economical to the community as a whole. Conferences were held with medical leaders in the city who have worked on the problem of the care of poliomyelitis patients. The New York City Department of Health, in the spring of 1952, appointed an advisory committee composed of leaders in the clinical care of poliomyelitis, pediatrics, physical medicine and rehabilitation, orthopedics, nursing, and representatives of the local chapter and national office of the National Foundation for Infantile Paralysis. Dr. Rustin McIntosh served as chairman of this committee.

At the first meeting of this committee, there was considerable discussion concerning several basic questions. Is it possible for many hospitals, each caring for only a few patients in respirators, to provide adequate total care, or is it more likely that a few respirator centers, each caring for many patients, could provide care of a high quality for maximum and early rehabilitation? If respirator centers are developed, should these centers provide care for both acute and chronic respirator patients, including those patients requiring custodial care? If respirator centers are developed, would it be helpful if standards were available to assist interested hospitals in planning facilities; if so, what should the standards contain? If respirator centers are developed, should they be a part of general hospitals? After much discussion, the committee recommended that one or more respirator centers be developed in the city, that the committee establish recommended standards, and that the centers preferably be attached to general hospitals so that the necessary ancillary services would be readily available.

In developing standards, the experience of existing centers throughout the country was called on. These standards were established by the advisory committee. The final approved standards [2] consist of sections concerning personnel of all types, physical set-up, essential equipment, techniques, policies and procedures, and home follow-up after discharge from the center.

Considerable joint planning has been done by the city health and hospitals departments, the National Foundation for Infantile Paralysis, and interested voluntary hospitals to develop centers of high caliber in the city. The approved standards are being used as a guide in the development of these centers. Two centers are currently being planned, one in a voluntary hospital and the other in a municipal hospital in conjunction with a large rehabilitation program. Both of the centers will carry on training and research activities in addition to the patient care program. The training and research activities logically belong to the large teaching hospitals connected with medical schools; for this reason, the two hospitals currently considering plans for respirator centers fall into this category.

While the plans for assisting hospitals in financing the centers are not completed, some steps have already been taken. The New York City Department of Health has asked for budgetary approval of a daily rate of $20 for the care of patients requiring financial aid in approved centers as part of the medical rehabilitation program of the Bureau for Handicapped Children. The National Foundation for Infantile Paralysis is considering possibilities of subsidy for the development of the program in the centers.

SUMMARY

This report describes the steps being taken in New York City to provide an improved quality of care for the maximum rehabilitation of poliomyelitis patients in respirators. Surveys of hospitals caring for respirator patients in the city in 1951 and 1952 showed a wide variation in the kind and quality of care given. An advisory committee was formed and was composed of experts in the field. This committee endorsed the principle of respirator centers and set up standards to be used as guides in the development of these centers. Two such centers are being developed in the city.

125 Worth St. (13) (Dr. Wallace).

2. Bureau for Handicapped Children: Recommended Standards for the Care of Poliomyelitis Respirator Patients in New York City, New York City Department of Health, May, 1952.

POSTOPERATIVE ADRENAL CORTICAL INSUFFICIENCY

OCCURRENCE IN PATIENTS PREVIOUSLY TREATED WITH CORTISONE

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Although therapeutic experience with cortisone has been accumulated rapidly during the past four years, the limits of therapeutic usefulness and the hazards of this and similar compounds still await precise definition. There is considerable evidence to support the view that the administration of adrenal cortical hormones may suppress adrenal function and induce adrenal atrophy. The extent, duration, and potential seriousness of this hazard in medical and surgical practice are, however, only now becoming apparent. A year ago, Fraser and coworkers [1] reported a postoperative death that was regarded as the result of acute postoperative adrenal cortical insufficiency associated with atrophy and functional suppression of the adrenal cortex induced by previous treatment with cortisone. We wish to describe two additional examples of the same surgical complication, with further observations on the occurrence in man of adrenal atrophy induced by cortisone.

REPORT OF CASES

CASE 1.*—A woman, 54 years of age, entered the Mayo Clinic on Oct. 31, 1951, because of rheumatoid arthritis and epigastric distress. Four years previously, the presence of severe pain and stiffness of the joints of the hands, wrists, knees, and shoulders led to a diagnosis of rheumatoid arthritis. Beginning one year before admission, she was given 75 mg. of cortisone three times a week. After four months, the dose was increased to 100 mg. a day. She gained 20 lb. (9.1 kg.), and noticed an increase in roundness in the face and a coarsening of features. For three or four weeks before admission she complained of epigastric distress that occurred between meals, and, because of this, the dose of cortisone was reduced to 75 mg. per day.

Examination disclosed swelling and tenderness of many joints. The blood pressure was 160 mm. Hg systolic and 80 mm. Hg diastolic. The face was full. The erythrocyte count was 3.7 million per cubic millimeter; the hemoglobin content was 7 gm. per 100 cc.; the blood smears were characteristic of hypochromic microcytic anemia. Roentgen examination of the stomach revealed a penetrating gastric ulcer on the lesser curvature proximal to the pylorus. Melena was noted while the patient was in the hospital.

On Nov. 7, the patient vomited dark-brown material and suffered severe pain in the epigastrium. The blood pressure dropped, and she became cold and restless. Three transfusions totalling 2,000 cc. were given. The dose of cortisone during this period was 50 mg. per day by mouth. On Nov. 12, the dose was reduced to 37.5 mg. This dose was continued until 6 p. m., Dec. 5, when an additional 100 mg. of cortisone was given intramuscularly. On Dec. 6, a subtotal gastrectomy (Billroth I, Schoemaker modification) was carried out. The patient remained semiconscious after the operation; signs of shock appeared; and she became anuric. Despite the intramuscular administration of 300 mg. of cortisone, the woman failed to respond to emergency measures and died 30 hours after operation.

Postmortem examination was carried out 12 hours after death. The right pleural cavity contained 500 cc. and the left 150 cc. of clear yellow fluid. The heart weighed 305 gm. and was normal. The lungs weighed 1,020 gm. and showed marked congestion and edema, with patchy bronchopneumonia. The spleen and liver were normal except for slight congestion. The suture lines at the site of the recent gastrectomy were intact. The esophagus, duodenum, pancreas, bladder, kidneys, uterus, ovaries, breasts, and thyroid appeared normal.

The adrenal glands were quite atrophic; the right weighed 2.7 gm. and the left 3 gm. (fig. 1*A*). The cortex was 2 mm. thick. The bright yellow color usually seen was absent. Microscopically, there was almost complete absence of the vacuoles usually seen when the sections are stained with hematoxylin and eosin. With Sudan 4 stain, diminished quantities of lipid were noted throughout all zones (fig. 1*B*). The medulla appeared normal. The pituitary body was smaller than normal, and microscopic sections disclosed a loss of granularity in the basophils, with hyalinization and vacuolization (fig. 1*C*). (See fig. 3 for comparison with the normal gland.)

The shock and anuria that followed operation in this patient did not seem commensurate with the uneventful operation and anesthesia that preceded it. The appearance of hypercortisonism and the changes observed in the adrenal and pituitary glands at necropsy constituted the only positive necropsy findings apart from pulmonary edema. They appeared to offer adequate evidence for the assumption that the final shock was due to acute adrenal cortical insufficiency resulting from prior cortisone therapy.

CASE 2.—A woman, 54 years of age, entered the Mayo Clinic on Aug. 18, 1952, for treatment of rheumatoid arthritis. Eight years previously, swelling of the right distal interphalangeal joints and of the right instep and heel occurred. Subsequently, the hands, feet, knees, elbows, ankles, and shoulders became progressively involved, with many acute episodes of joint pain and swelling in various locations. In 1949, the patient was treated with colloidal gold and in 1950 and 1951, she received four courses of cortisone or corticotropin (ACTH) by injection; this was interspersed sporadically with cortisone given orally. During the preceding year, she received two injections of cortisone a week, and, on eight occasions, two injections per day for one week. During the vigorous treatment with cortisone, she noticed a rounding of her face. A year previously, a cystocele and a rectocele had been repaired without untoward reaction while the patient was receiving substantial doses of cortisone.

Examination disclosed a blood pressure of 122/80 mm. Hg. The patient weighed 120 lb. (54.4 kg.). The ankles were slightly edematous, and the face was round and florid. The joints of the fingers and knees were deformed, and there was tenderness over the lumbar part of the spinal column. The sedimentation rate was 115 mm. in one hour. Treatment with cortisone was discontinued on the patient's admission. A total of 422 mg. of hydrocortisone was injected into the knees, left shoulder, and ankles on six occasions between Aug. 23 and Dec. 22. There was little untoward reaction to withdrawal of cortisone after

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Because of space limitations, the bibliographic references have been omitted in THE JOURNAL and will appear in the authors' reprints.

From the Division of Medicine (Drs. Salassa, Keating, and Sprague) and the Section of Pathologic Anatomy (Dr. Bennett), the Mayo Clinic.

* The relationship of gastrointestinal lesions to cortisone therapy in this case is discussed in detail by Sauer, W. G.; Dearing, W. H., and Wollaeger, E. E.: Gastrointestinal Manifestations Possibly Related to the Administration of Cortisone and Corticotropin, Proc. Staff Meet., Mayo Clin., to be published.

the first two weeks. Signs of hypercortisonism persisted for about six weeks after withdrawal of the drug. On Nov. 3, urinary excretion of 17-ketosteroids was 1 mg. per 24 hours.

On Jan. 7, 1953, a bilateral bunionectomy was performed. The patient withstood this procedure well, but 15 hours after operation irreversible shock developed. Despite treatment with

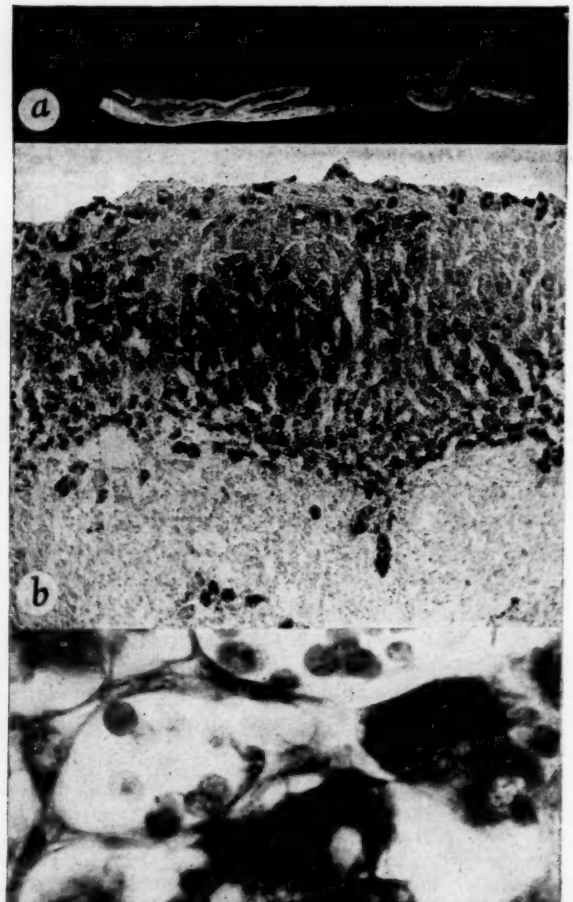

Fig. 1.—Specimens in case 1: *A*, gross appearance of adrenals (5.7 gm.) showing marked atrophy of cortex with zone of congestion in the zona reticularis; *B*, adrenal showing loss of sudanophilic material in all zones of the cortex, irregular loss in zona fasciculata, and narrowing of cortex (Sudan 4 stain, × 55); and *C*, cross section of pituitary showing loss of granules in cytoplasm of basophils and hyalinization with vacuolization in two cells (Crooke's stain, × 1,050).

125 mg. of cortisone given intramuscularly and 100 mg. of hydrocortisone given intravenously 30 minutes before death, the woman died 16 hours after the operation.

At post mortem, the lungs weighed 755 gm., and moderate pulmonary edema was evident on microscopic examination. Focal areas of organizing lipid pneumonia were also observed. The heart, spleen, liver, gastrointestinal tract, pancreas, kidneys, bladder, ovaries, and breasts appeared normal. The thyroid contained several cystic and degenerated colloid adenomas. The right adrenal weighed 3.8 gm. and the left 3.7 gm. (fig. 2*A*). Examination of routine microscopic sections revealed that the adrenal cortex was approximately 1 mm. thick and that there was loss of vacuolization and increase in granularity of the cells of the zona fasciculata. With Sudan 4 stain, there was evidence of diminished lipid throughout the zona fasciculata and zona reticularis, with a patchy decrease in lipid in the zona glomerulosa (fig. 2*B*). The medulla was normal. There was no apparent decrease in the number of cells in the adrenal cortex, but the cells were smaller than normal. The nuclei were prominent.

The pituitary weighed 0.6 gm. (normal weight 0.7 to 1.1 gm.). The cut surface was glistening yellow-white with irregular follicles. Microscopic examination disclosed a decrease in the number of basophils. Most of the basophils showed degranulation with hyalinization and vacuolization (fig. 2*C*). This alterative process involved all the basophils; no normal basophils could be found.

Except for six intra-articular injections of hydrocortisone, this patient had not had steroid hormone therapy for four and a half months preceding operation. On admission she had severe hypercortisonism, clinical manifestations of which had disappeared three months before operation. Although urinary 17-ketosteroids were greatly reduced two months preceding operation, a finding suggesting adrenal suppression, the long interval without cortisone undoubtedly led to the false assumption that a

Fig. 2.—Specimens in case 2: *A*, gross appearance of adrenals (7.5 gm.) showing atrophy of adrenal cortex, with congestion of the zona reticularis; *B*, adrenal showing disease of sudanophilic material in zona glomerulosa and irregular areas of diminished lipid in other two zones (Sudan 4 stain, × 55); and *C*, pituitary showing loss of granules in cytoplasm of basophils, a few hyalinized basophils, and vacuolated changes similar to Crooke's changes in basophils (Crooke's stain, × 1,050).

mild surgical procedure could be undertaken without preoperative treatment. Nevertheless, symptoms consistent with fulminating acute adrenal insufficiency devel-

oped 14 hours postoperatively, and the patient died despite emergency measures. The atrophy of the adrenals and pituitary constituted the only significant necropsy findings and provided anatomic support for the conclusion that the suppressive effect of prior cortisone therapy

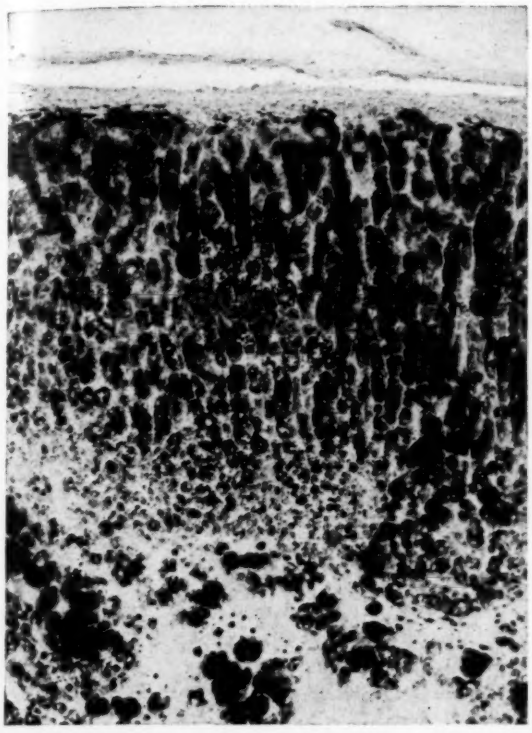

Fig. 3.—Adrenal gland illustrating normal pattern of three distinct zones of adrenal cortex (Sudan 4 stain, × 55).

was the cause of the postoperative adrenal cortical crisis and death, even though treatment with cortisone had been discontinued four and a half months before.

ADDITIONAL OBSERVATIONS ON ADRENAL CHANGES

In order to investigate the occurrence of adrenal atrophy further, the weights of the adrenal glands of 46 adult patients who died of various conditions for which they had received cortisone were compared with the weights of the adrenal glands of 42 patients who died of similar conditions but who had never received cortisone. These data are summarized in figure 4. While the average adrenal weight was significantly decreased in the group treated with cortisone, conspicuous adrenal atrophy occurred in only a small proportion of cases. The relationship of adrenal atrophy to the duration and time of treatment is given in detail in the table.

In nine patients who received cortisone for less than five days (four received it until the day of death), adrenal weights were always within the normal range and histological changes were lacking. The most consistent reduction in adrenal weight occurred in 10 patients who received cortisone for five or more days and until the day before death. The mean weights of the adrenals were significantly reduced in the groups of patients who were treated with cortisone for five or more days and in whom treatment with cortisone was discontinued within 20 days before death; in the groups of patients in whom treatment with the drug was discontinued for at least 21 days before death, there was no significant reduction in the mean weights of the adrenals. The data obtained are too limited to permit further correlation with either dose or duration of therapy.

It is important to note, however, that pronounced adrenal changes were observed on histological examination in a great majority of the patients who received cortisone, even though the combined weights of the adrenals were well within the normal range. This is illustrated in figure 5 showing marked loss of lipid material in the zona fasciculata and the zona glomerulosa of adrenals that were normal in weight (13.7 gm.) and gross appearance. The patient received cortisone in a dose of 100 mg. a day for 13 days until 16 days before death from subacute lupus erythematosus.

Relationship of Adrenal Atrophy to Duration and Time of Treatment

Group	No. of Cases	Adrenal Weight, Gm. Range	Mean ± S. E.*	P †
Untreated	42	8.0-19.2	12.6 ± 0.5	—
Treated, total	46	5.0-16.8	9.8 ± 0.4	0.01
Less than 5 days	9	10.6-14.4	11.8 ± 0.4	0.1
5 days or more	37	5.0-16.8	9.2 ± 0.4	0.01
Treated until death	10	5.7- 9.8	7.9 ± 0.5	0.01
Treatment discontinued				
1-10 days before death	12	5.0-13.1	8.6 ± 0.6	0.01
11-20 days before death	6	7.4-13.7	9.7 ± 0.9	0.05
21-30 days before death	4	6.7-16.6	11.0 ± 2.2	0.1
31 or more days before death	5	7.8-14.6	10.7 ± 1.2	0.1

* S. E. = standard error.
† P = probability.

The changes in the adrenal cortex that seem to be characteristic of previous cortisone administration appear to be loss of lipid content of cells of both the zona glomerulosa and the zona fasciculata. Where this has occurred, an eosinophilic granular cytoplasm is seen. The cells shrink and cause decreased thickness of the cortex, but there is no apparent decrease in the number of cortical cells. Rather, they appear to be compressed, with an increase in the nuclear-cytoplasmic ratio. In adrenals examined after treatment with cortisone has been omitted for several weeks or months, evidences of recovery are seen. These consist of the appearance of more lipid material in the cells of the zona glomerulosa and the outer portions of the zone fasciculata. This material seems to replace the granules of the cytoplasm with vacuoles of

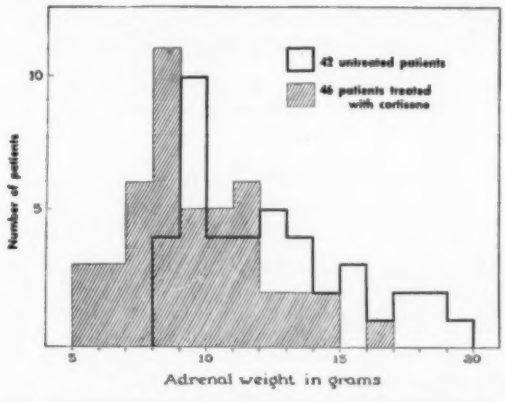

Fig. 4.—Adrenal weights of 46 patients treated with cortisone compared with adrenal weights of 42 patients not treated with cortisone.

varying size that, on frozen section, are filled with sudanophilic substance or lipid. This process proceeds in a patchy fashion, and in some areas there may be island-like projections throughout the thickness of the cortex. The zona reticularis loses its lipid last and often maintains a certain amount of lipid even in the severest cases in which it is depleted in the other zones.

PRIOR OBSERVATIONS

The earliest observations of adrenal suppression by adrenal hormone were clinical. Eighteen years ago, Kepler [2] stated: "In the presence of a hyperfunctioning tumor of one adrenal gland, the other may be absent or atrophic. Even when normal, the other gland apparently may temporarily cease to function after operation. Following surgical procedure, it is advisable to observe the patient carefully for acute adrenal insufficiency, and if this develops, to administer promptly the adrenal hormone and saline." A review of the literature some years later indicated clearly that if such a plan of management was followed, then the mortality rate that followed removal of a hyperfunctioning adrenal cortical tumor was extremely low, whereas if it was not, the mortality rate was extremely high owing almost entirely to postoperative adrenal cortical insufficiency.[3] The evidence reported here provides ample reason to regard postoperative patients just relieved of hyperfunctioning adrenal cortical tumors and postoperative patients previously treated with cortisone as suffering from the same physiological defect in adrenal function.

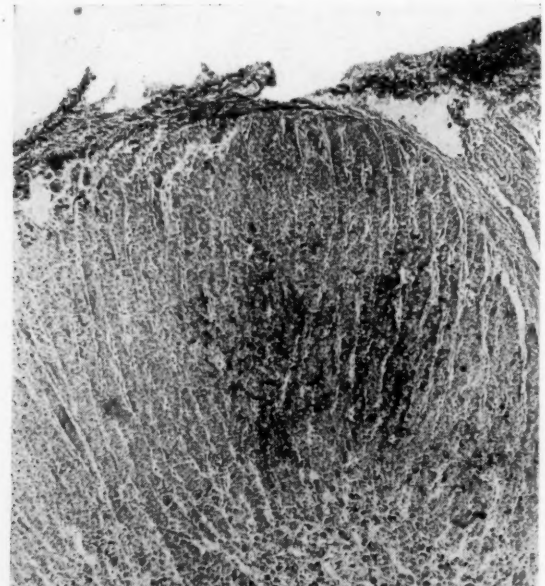

Fig. 5.—Section of adrenal glands of normal weight (13.7 gm.) in patient who received 1.3 gm. of cortisone; most of sudanophilic material lost (Sudan 4 stain, × 55).

Experimental Data.—In 1937 and 1938, Ingle and his associates [4] demonstrated that administration of adrenal cortical extract, cortisone, and compounds A and B resulted in atrophy of the adrenal cortex of rats. Winter, Silber, and Stoerk [5] observed that parenteral administration of 3 mg. of cortisone a day for 10 days reduced the adrenal weight of rats by 40%. After omission of cortisone, recovery was detectable in 4 days, well advanced in 10 days, and complete in 45 days. Other authors have reported atrophy of the adrenal cortex of rats after five days of cortisone administration.[6] Stebbins [7] observed that the glandular parenchyma was restored to normal appearance 17 days after the administration of cortisone was discontinued.

It is generally agreed that the atrophy of the adrenal cortex induced by exogenous adrenal steroids is entirely the result of decreased secretion of endogenous corticotropin by the anterior pituitary. Clear-cut evidence that this is the case was first provided by Ingle,[8] who demonstrated that adrenal atrophy did not occur in normal rats or rats having had a hypophysectomy that were given adrenal hormones when pituitary extract containing corticotropin was also given. Stebbins [9] found that administration of cortisone could not further reduce the adrenal weight in rats having had a hypophysectomy, while Lewis and co-workers [10] also found that cortisone would not induce atrophy of the adrenal cortex of similarly treated rats maintained on corticotropin. The concept that adrenal cortical atrophy resulting from cortisone reflects diminished production of corticotropin gains further support from the observation that the histological appearance of the adrenal cortex of rats treated with cortisone is similar to that of rats that have had a hypophysectomy.[11] Sayers and Sayers [12] have demonstrated that a variety of adrenal cortical hormones, particularly cortisone and hydrocortisone, can inhibit the release of corticotropin in rats subjected to various forms of stress. Golden and Bondy [13] observed Crooke's changes in the basophils of the anterior pituitary as well as atrophy of the adrenal cortex after giving rats 3 mg. of cortisone a day for 10 days. Administration of 1 mg. of corticotropin per day resulted in similar extensive Crooke's changes in pituitary basophils, but these were, of course, accompanied by marked adrenal cortical hyperplasia.

Clinical Observations.—Clinical studies [14] have disclosed the following evidence suggestive of depressed adrenal cortical function following treatment with cortisone in man: 1. Many patients have complained of weakness and fatigability that persisted for variable periods of time after withdrawal of cortisone. 2. Urinary excretion of 17-ketosteroids sometimes decreased soon after administration of cortisone, and this diminished excretion sometimes persisted throughout the period of therapy and for a variable period afterward. 3. The ability of the adrenal cortex to respond to one or several doses of corticotropin, as measured by decreased concentration of eosinophils or by increased urinary excretion of 17-ketosteroids or of 17-21-hydroxy-20-ketosteroids, is diminished by long-term administration of cortisone.

Adrenal cortical atrophy has been found at necropsy in some patients who received cortisone.[15] O'Donnell and co-workers [15b] found evidence of histological repair in one case in which death occurred 17 days after cortisone was last given. In a second patient with multiple myeloma who had received 6 gm. of cortisone in 31 days (the last dose given 51 days before death), the zona reticularis and the zona fasciculata were mildly hypertrophic.

Fraser and associates [1] observed fatal postoperative adrenal insufficiency after an orthopedic operation. The patient had received a large amount of cortisone; the dose was reduced to 25 mg. twice a day two months before operation and discontinued two days before operation. The patient apparently did not have hypercortisonism at any time. At necropsy, atrophy of both adrenals was observed.

In patients with Cushing's syndrome resulting from a hyperfunctioning adrenal cortical tumor, Crooke's changes with increase in pituitary basophils have been observed.[16] In some instances of this condition, objective evidence of adrenal insufficiency has persisted as long as a year after removal of the hyperfunctioning tumor (observation at the time of operation showed that atrophy existed in the opposite adrenal gland). Laqueur [17] observed Crooke's changes in pituitary basophils of patients treated with cortisone. Golden and associates [18] have found both Crooke's changes and an increase in the number of pituitary basophils of patients treated with corticotropin.

Kilby and Bennett [19] have recently correlated various morphological changes observed in the pituitary with the amount and duration of therapy with corticotropin or cortisone in 77 cases. The earliest changes observed were degranulation of basophils, with formation of homogeneous cytoplasm that presented an appearance of ground glass. This was followed by vacuolization of basophils with increased hyaline material in the cytoplasm; this material was situated at the periphery initially but then progressively involved most of the cytoplasm. At this stage, the appearance strongly resembled the changes described by Crooke [16] in 1935 in the pituitaries of patients with Cushing's disease. The cytoplasm often appeared to be reticulated with an increase in the size of cells and in the nucleolar-nucleus ratio [20] (these may represent the amphophils of Mellgren). In cases in which treatment resulted in hypercortisonism, most of the basophils showed hyalinization with vacuolization of the cytoplasm. These changes were associated both with cortisone and with corticotropin therapy, but they were most pronounced in those cases in which corticotropin was given; they occurred after relatively small doses of this substance. The smallest dose of cortisone resulting in pituitary changes was 100 mg. a day for four days. This was also accompanied by adrenal changes of the type previously described.

From the evidence presented it seems reasonably clear (1) that cortisone is capable of producing atrophy of the adrenal cortex, (2) that this atrophy may be associated with impaired adrenal cortical function, (3) that both the atrophy and the accompanying functional impairment may outlast (perhaps occasionally for a long time) the withdrawal of cortisone, (4) that adrenal atrophy and impaired function may lead to acute adrenal cortical insufficiency in the face of sufficient stress, such as an operation, and (5) that these effects are due entirely to suppressed production of endogenous corticotropin by the patient's pituitary. This implies, of course, that administration of corticotropin may have the same hazard as the administration of cortisone.

It has been suggested that the use of corticotropin instead of, or together with, cortisone or hydrocortisone will eliminate the risk of impaired adrenal insufficiency. From what is known of the action of exogenous corticotropin, this seems quite improbable. The activity of exogenous corticotropin is of short duration, and, while the resulting adrenal hyperplasia may last for some interval after discontinuing treatment with corticotropin, there is reason to doubt that increased functional activity of the adrenal cortex does so. Since corticotropin appears as effective as cortisone in producing histological changes in the pituitary gland in man and experimental animals, it would seem safest to assume that the endogenous secretion of corticotropin is depressed by exogenous corticotropin and that postoperative adrenal insufficiency is just as likely to follow corticotropin therapy as cortisone therapy.

CLINICAL EVALUATION OF SURGICAL RISKS

The large number of conditions for which cortisone is employed and the large number of patients to whom it is given represent an important clinical problem that must be considered whenever any patient is to undergo surgical treatment. The clinical problem entails (1) the selection from among patients who have ever been treated with cortisone or corticotropin those likely to have sufficiently impaired pituitary and adrenal function to be liable to the development of adrenal cortical insufficiency as a result of surgical stress, (2) the prevention of adrenal cortical insufficiency in those patients whom the clinician considers susceptible, and (3) the treatment of postoperative adrenal cortical insufficiency when it appears in those instances in which clinical acumen was poor or prophylactic replacement therapy was withheld or inadequate.

It is difficult, at present, to decide which patients are liable to adrenal cortical insufficiency as the result of previous therapy with adrenal or pituitary hormones. Since such complications apparently have not been observed frequently and since many thousands of patients who previously have received cortisone or corticotropin must have been operated on, it is probable that many such patients are able to withstand the stress of an operation uneventfully and without replacement therapy.

How then is one to determine which few patients are liable to adrenal insufficiency and should receive prophylactic replacement therapy? If all patients are to be protected from all potential hazards, we may be obliged to act on the basis of what we do not know rather than on the basis of what we do know. We do not know the minimal or maximal interval that must elapse after withdrawal of cortisone before the suppressive effect may be considered to be certainly abolished. It would be most unwise to assume that this interval is short. On present evidence, it seems safest to suppose that any patient who has received cortisone in significant quantities within three to six months should receive prophylactic therapy. Patients with marked hypercortisonism (whether of natural origin or induced by medication) may be more liable to persistence of impaired pituitary and adrenal function than those who have merely had maintenance therapy. On the basis of case 2, as well as past experience with the postoperative behavior of hyperfunctioning

adrenal tumors, we feel that any patient who has had severe hypercortisonism within one to one and a half years before an operation should perhaps be treated as though he were liable to acute adrenal insufficiency.

We do not know the shortest period of treatment that will produce adrenal suppression. There is evidence that suppression may occur in some instances after five days of treatment with cortisone. We do not know the minimal dose of cortisone that will impair adrenal function. Theoretically, any dose equalling or exceeding the daily physiological requirement may suppress endogenous function. This may not be a very large dose; perhaps a dose of only 20 mg. of cortisone a day may be suppressive. We do not know that there is any reason to consider such minimal doses any less dangerous than much larger ones, except perhaps in cases in which frank hypercortisonism has occurred. Lastly, while it is quite evident that there exists a great deal of individual variation in susceptibility or resistance to pituitary and adrenal suppression, we do not know how to anticipate or measure such individual variations.

It is difficult to say what reliance should be placed on tests of adrenal cortical function. Urinary excretion of corticosteroids or 17-ketosteroids, response to administration of corticotropin in terms of both depression of eosinophils and changes in urinary excretion of steroids, the "water test," and the Cutler-Power-Wilder test are all procedures that give some measure of adrenal function. If these indicate impaired adrenal function, they should, of course, be taken seriously in evaluating surgical risk. Unfortunately, in the current state of knowledge, it may not be safe to assume that a patient with normal responses to such procedures possesses adrenal cortical function entirely adequate to cope with the stress of an operation. The only entirely reassuring measure of the ability of the adrenal cortex to function safely would be its response to a stress comparable to that represented by the proposed surgical procedure. Since this is not possible at present, every patient who has been exposed to cortisone therapy in the terms that have been described should be regarded during and after a surgical procedure as potentially liable to the development of postoperative adrenal cortical insufficiency.

PREOPERATIVE AND POSTOPERATIVE MANAGEMENT

In those instances in which the clinician regards postoperative adrenal cortical insufficiency a serious hazard, preoperative or prophylactic treatment may be given. The purpose of such preoperative treatment is to provide a sufficient depot of adrenal steroid in the muscle to insure an adequate and continuing supply of adrenal hormone at critical times during and after the operation. On the basis of experience gained in the preoperative and postoperative management of patients known to have Addison's disease, pituitary insufficiency, or hyperfunctioning adrenal cortical tumors and patients subjected to total adrenalectomy as treatment for hypertension or metastatic carcinoma, the following regimen may be proposed: 200 mg. of cortisone are given intramuscularly 48 hours, 24 hours, and 1 or 2 hours before operation. Cortisone given orally before operation may be of no advantage since its effects are of short duration and hence no steroid depot, such as is desired, is thereby created. If preoperative cortisone therapy is given, the dose of cortisone is gradually reduced after the operation. The rate of reduction of the dose and the duration of therapy after operation are determined by the condition of the patient. Usually treatment with cortisone is discontinued in three or four days. There seems to be no reason to fear untoward effects of such doses provided they are not given for long periods of time.

We believe that all patients who give a history of prior therapy with cortisone, regardless of whether they have been considered suitable subjects for preoperative or prophylactic treatment, should be followed postoperatively as though the surgeon expected to encounter adrenal cortical insufficiency. They should be closely observed, particularly during the first 24 hours after operation. Temperature, pulse, and blood pressure should probably be recorded at hourly intervals during this period.

Certain special precautions may, in some instances, enable patients to avoid difficulty. They should not be made to fast for an excessive period of time. If possible, the operation should be performed early in the morning rather than late in the day. Furthermore, patients should not be given excessive quantities of 5% solution of glucose and distilled water. The postoperative management of the water and electrolyte balance in patients with real or potential adrenal insufficiency is at best a difficult matter, but there seems to be no doubt that such patients do not tolerate excessive quantities of water. For this reason, glucose without sodium chloride solution should probably not be given. Also, such patients for reasons that are not understood, are sometimes adversely affected by morphine or its derivatives. Morphine or related substances, if given at all, should be used in small quantities; it would perhaps be best to use alternative types of narcotics.

If, in spite of all efforts, adrenal cortical insufficiency does occur, it appears that it is most likely to happen during the first 24 hours after operation. It is perhaps most likely to appear as a sudden circulatory collapse, fall in blood pressure, rise in pulse rate, and, perhaps, elevation of temperature. The patient may become unconscious rather quickly. Any of these symptoms should be regarded as indicating a serious emergency. The administration of an isotonic solution of sodium chloride or 5% glucose in an isotonic solution of sodium chloride should be started at once. If solutions of cortisone or hydrocortisone for intravenous use are available, they may be life-saving in such circumstances and should be given promptly. If solutions of steroids for intravenous use are not available, large quantities of aqueous adrenal extract should be administered both intramuscularly and intravenously (the latter by adding it to the sodium chloride solution administered intravenously). Four milligrams of norepinephrine added to the sodium chloride solution appears to aid in controlling circulatory collapse and extreme hypotension. Although it may have no immediate effect, 200 mg. of cortisone may be given intramuscularly, since it will ultimately become effective if the patient can be maintained during the first 24 hours by more rapidly acting preparations. If a patient is conscious and not nauseated or vomiting, 100 to 200 mg. of cortisone may be given orally. It is well to remember

that while the activity of cortisone by this route is prompt, the duration of the activity is short (probably does not exceed eight hours).

In order to protect all patients from this surgical risk, the present state of knowledge may require that we treat many patients unnecessarily. This seems justifiable in order to protect the few who may undergo a serious hazard, particularly since there seems to be very little reason to fear that the measures proposed will be injurious even though they may be unnecessary. Until we have much more information than at present, it would be better to treat patients who do not require it than to withhold treatment and careful observation from those who do.

Finally, the fact that the use of cortisone, hydrocortisone, and corticotropin may introduce a new and serious hazard to future surgical treatment should provide physicians with an additional reason for making certain that the indications for which these drugs are used are reasonable and appropriate. There seems to be no reason, however, to regard this hazard as contraindicating the use of these drugs in those conditions in which they have real therapeutic advantages.

SUMMARY AND CONCLUSIONS

Cortisone may cause adrenal cortical atrophy and impair adrenal cortical function. These effects may outlast treatment for substantial intervals of time. They are regarded as the result of impaired production of endogenous corticotropin (ACTH) by the patient's pituitary gland. It seems reasonable to presume that the administration of exogenous corticotropin or hydrocortisone also produces this effect, and it is expected that treatment with these latter, like treatment with cortisone, would also be followed by adrenal suppression.

Two cases are presented in which acute postoperative adrenal cortical insufficiency was regarded as the cause of death. In both cases, anatomic changes in the adrenal glands were found that were considered the result of previous treatment with cortisone. Pathological studies in 46 cases in which cortisone treatment was used previously also indicated the ability of this substance to induce adrenal atrophy.

It is advisable to consider carefully the hazard of potential adrenal cortical insufficiency in any patient who requires surgical treatment and who has had previous treatment with cortisone, hydrocortisone, or corticotropin. Those patients in whom this hazard is considered serious should be treated prophylactically with cortisone given intramuscularly before operation. All patients who have had prior therapy with these hormones, whether treated prophylactically or not, should be observed with great care so as to avoid postoperative adrenal cortical insufficiency if possible and to treat it promptly in those few instances in which it is encountered.

GENITOURINARY COMPLICATIONS OF PELVIC FRACTURES

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This age of speed and great industrialization in which we are living has resulted in a considerable increase in the incidence of pelvic fractures. The frequency of associated urologic complications has risen in proportion. The effect of the automobile and the airplane on the frequency of these injuries, as well as their complications, is readily appreciated by references to the literature. Thirty-five years ago, only 4% of the cases of ruptured bladder were due to vehicular accidents.[1] Twenty years ago, Noland and Conwell [2] found that 35% of the cases of pelvic fracture were due to this cause, while only five years ago, Butt and Moore [3] reported that 73% of their cases were related to such accidents.

It has long been known that the cause of death, in those patients who had pelvic fractures complicated by injury to the urinary tract and who survived the initial injury, was urinary extravasation and infection. Although the wide use of plasma and whole blood has been extremely important in combating the initial shock and decreasing the early mortality, the advent of chemotherapy has undoubtedly been the prime factor in reducing the later mortality and morbidity from urologic complications. It has permitted wider use of the urethral catheter for diversion of the urine. It has reduced the severity of stricture formation in urethral injuries by controlling the infection usually associated with an indwelling catheter. It has prevented the systemic sepsis often accompanying these injuries and has permitted conservative treatment.

In spite of the merits of chemotherapy, the physician must not forget or disregard the primary surgical principles: (1) combat shock, (2) make an early and accurate diagnosis, (3) divert the urine, and (4) drain extravasated urine.[4] The adherence to these principles alone decreased the mortality from 78% in 1907 to 23% in 1942.[4]

In order to verify the value of chemotherapy in reducing the mortality and to determine the incidence of urologic complications, a study was made of the records of all cases of pelvic fracture during the period from 1947 to 1952 at Colorado General, Denver General, and St. Luke's hospitals. There was a total of 357 cases of pelvic fracture admitted to the three hospitals during this five year period (table 1). The incidence of urologic complications was 14%, 6.3%, and 3.8% in the respective institutions, with an average of 7.3%. The reported incidence of these complications in the literature varies widely and ranges from 7 to 40%.[3] The mortality rates in the group with no urologic complications were 6.7%,

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Read at the Sixth Clinical Session of the American Medical Association, Denver, Dec. 5, 1952.

1. Campbell, M. F.: Urologic Injuries, Am. J. Surg. **30**: 327-341, 1935.

2. Noland, L., and Conwell, H. E.: Acute Fractures of the Pelvis: Treatment and Results in 125 Cases, J. A. M. A. **94**: 174-178 (Jan. 18) 1930.

3. Butt, A. J., and Moore, T. D.: Urologic Complications of Pelvic Fractures, South. Surgeon **13**: 508-520, 1947.

4. McCague, E. J., and Semans, J. H.: The Management of Traumatic Rupture of the Urethra and Bladder Complicating Fracture of the Pelvis, J. Urol. **52**: 36-41, 1944.

13.5%, and 4.8% respectively, with an average of 8.3%. On the other hand, the mortality rates in the group with these complications were 25%, 33%, and 0, respectively, with an average of 19.3%.

It would appear from these figures that injury to the urinary tract more than doubled the mortality rate. An analysis of the case records showed, however, that in not a single case was death directly attributable to the urinary

TABLE 1.—*Incidence and Outcome of Genitourinary Complications in Pelvic Fractures in Three Hospitals Over Period of Five Years*

Hospital	No. of Cases of Pelvic Fracture	No. of Cases With G.U. Complications	Deaths Without G.U. Complications	Deaths With G.U. Complications
Colorado General Hospital	86	12 (14%)	5 (6.7%)	3 (25%)
Denver General Hospital...	142	9 (6.3%)	18 (13.5%)	3 (33%)
St. Luke's Hospital.....	129	5 (3.8%)	6 (4.8%)	0
Totals	357	26 (7.3%)	29 (8.3%)	6 (19.3%)

tract injury (table 2). All of those patients who died had extensive multiple injuries and lived only 4 to 24 hours; therefore, they can be eliminated in computing the mortality rate from urologic complications. There were no deaths in the group that survived the so-called initial injury period, and undoubtedly chemotherapy along with adequate, early surgery has done much to further reduce the once high mortality of these complications.

Injuries to the bladder and urethra are the commonest urologic complications associated with fractures of the pelvis,[5] but occasionally damage to the ureters or kidneys may occur. Only those conditions involving the bladder and urethra will be discussed in this paper.

EXAMINATION OF PATIENT WITH FRACTURED PELVIS

The frequency of these complications demands that the urinary tract of every patient with a fractured pelvis be investigated to determine whether or not there is any damage to these organs. When one considers that the usual signs and symptoms may be misleading, it becomes apparent that a definite diagnostic procedure should be followed. For instance, a patient with a ruptured bladder may void clear urine, while a patient with only a contused bladder may void extremely bloody urine. Also, the pain and tenderness in the suprapubic area usually associated with bladder injuries may be due entirely to the bony injuries.

Accordingly, the following investigative plan is recommended. As soon as roentgenograms have been made confirming the diangosis of a fractured pelvis, a rectal examination should be done. If there has been complete severance of the urethra at its junction with the prostate, the normal outlines of the gland will not be palpable; in fact, one will feel only a soft, boggy mass in the usual location of the prostate as the gland is retracted anteriorly and superiorly. The remaining space is filled by a large hematoma. If this examination reveals no abnormality or if confirmation of a diagnosis is desired, then an attempt should be made to pass a soft rubber catheter. This, of course, should be done with gentleness and under aseptic conditions. If the catheter passes easily, it is very important that it be left in place until the physician is completely satisfied that there is no injury to the urethra or bladder.

The facility with which the initial catheterization is done and the fact that a clear urine is obtained may lead the physician to believe that there has been no damage to the urethra; therefore, the catheter is removed, and the physician later finds that it cannot be reintroduced. It is then necessary to do a suprapubic cystostomy that might have been avoided if the catheter had been left in place.

After insertion of the catheter, 150 cc. of a 10% solution of an opaque medium, such as that used in intravenous pyelography, should be injected. This medium is recommended because it is relatively innocuous and will be absorbed or drained if surgery is performed. It is certainly preferable to oily types of medium that remain in the tissues for long periods or to sodium iodide that has certain irritating properties. A simple anterior-posterior film usually shows the presence or absence of rupture, although an additional oblique view may be helpful.

The injection and withdrawal of a measured amount of isotonic sodium chloride solution is to be condemned. If the bladder rent is small or if it is large but occluded by a piece of bowel, one may withdraw the same amount of fluid as injected even if the bladder is ruptured. Also, the catheter may become occluded by a blood clot so that less fluid is withdrawn than injected, even though the bladder is intact.

Use of the catheter and the retrograde cystogram is not accepted by all urologists because of the danger of increasing extravasation and spreading infection. I have found, however, that its main advantage has been to give almost infallible information immediately without any apparent ill effects. A cystogram may be secured by injection of dye intravenously. The main disadvantage to this method is that the patient is in from moderate to severe shock at the time the information is desired; therefore, the procedure has little value until shock has subsided and renal function has improved. Cystoscopy as a diagnostic procedure should be done only as a last resort, after all other diagnostic measures have failed to demonstrate a suspected injury. I have seen only two cases in which all other methods failed to disclose a ruptured bladder; yet such a lesion was found by cystoscopy.

TABLE 2.—*Causes of Death in Patients with Genitourinary Complications of Pelvic Fractures*

Causes of Death in Patients with Pelvic Fractures and Genitourinary Complications	Genitourinary Complications Present
1. Arteriosclerotic heart disease with recent and old infarction	Hematoma of bladder
2. Fractured pelvis, ankle, and vertebrae; died before full extent of injuries was determined	Thought to have a ruptured bladder
3. Subdural hematoma and fractured left leg and pelvis	Ruptured membranous urethra
4. Fractured ribs with hemothorax and lacerated liver with hemoperitoneum	Urethral bleeding
5. Acute pulmonary edema and fractured ribs and pelvis	Ruptured bladder
6. Ruptured spleen	Perivesical hemorrhage

DIAGNOSIS AND TREATMENT OF INJURY

The diagnosis of injuries to the urethra is usually not too difficult. The appearance of a slight or profuse amount of blood at the meatus before the patient has

5. McCague, E. J.: Factors Influencing Mortality and Morbidity in the Intrapelvic Ruptures of the Urethra and Bladder, Tr. Am. A. Genito-Urin. Surgeons (1942) 35: 307-316, 1943.

attempted to void means damage to the urethra at some point distal to the triangular ligament. If the injury is above this point, then there is no bleeding at the meatus, unless the patient has attempted to void.

The extent of the injury can usually be determined by the introduction of a soft rubber catheter. If there is complete severance of the canal, then the two ends usually separate, and since they are at different levels the catheter cannot be passed beyond this point. With only partial laceration, the catheter may pass easily into the bladder. If difficulty is encountered in passing an ordinary straight or Robinson catheter, the use of a coudé or Tiemann catheter may permit passage because the curved tip tends to follow the anterior wall of the urethra, which is usually intact if there is only partial severance. Occasionally, catheterization can be accomplished under anesthesia in cases in which it cannot be done otherwise, but, again, gentle manipulation is essential to avoid increasing the damage already present in the urethra.

The importance of catheterization is stressed because, if it can be accomplished, the catheter, if left in place, will provide urinary drainage as well as a splint on which the urethra can repair itself, and further surgery may not be necessary. Of course, infection may develop later in the traumatized area and may require incision and drainage.

In the case of complete severance of the urethra, catheterization is usually impossible for the reasons already stated; therefore, it is necessary to perform a suprapubic cystostomy for diversion of the urine. At cystostomy, it may be possible, with the use of Davis interlocking sounds, to bring the two severed ends together and to introduce a catheter through the urethra as a splint. If it is impossible to bring the two ends of the urethra together in this way, then open surgical repair is usually not advisable at the time of the injury because (1) a perineal incision is necessary, but the patient's poor condition often precludes this additional surgery; (2) the required lithotomy position is not advisable, because of the injuries to the pelvis; and (3) the added factor of possible hemorrhage into the perineal tissues makes dissection and identification of structures difficult. The optimum time for this surgery will vary with each case and will depend on associated injuries, patient's general condition, and presence or absence of infection. It certainly should not be delayed for several months, as the formation of dense scar tissue then makes the repair extremely difficult.

If the rupture involves the membranous urethra superior to the triangular ligament, then surgery is usually necessary because the most frequent injury to this portion is complete severance. This condition demands suprapubic exploration to reestablish continuity of the urethra as well as to drain extravasated urine. Since it is impossible to suture the prostatic urethra to the membranous portion, the Foley catheter has become an invaluable aid in treatment.[6] At the time of surgery, a Foley catheter is inserted into the meatus and through the anterior urethra. The tip of the catheter can be palpated as it emerges from the severed membranous urethra. It may then be difficult or impossible to introduce the tip into the prostatic urethra. This difficulty can be overcome by opening the bladder and introducing a second catheter from above. When it appears at the apex of the prostate, it is grasped and sutured to the Foley catheter. Traction on the upper catheter will draw the Foley through the prostatic urethra and into the bladder. After this maneuver, the Foley catheter bag is inflated, and the bladder opening is sutured. When the patient has been returned to bed, traction is placed on the catheter thus approximating the two ends of the urethra until healing can take place. This traction can be applied by various means, but it is believed that the use of an extension cord, with an attached weight, over a pulley at the foot of the bed is preferable. This gives a constant pull regardless of the position of the patient in bed. Usually a one-half to a one pound (226.8 to 463.59 gm.) weight is sufficient to accomplish the necessary approximation.

The end-result of most injuries to the urethra is the formation of a so-called traumatic stricture; therefore, all patients with urethral injuries should receive urethral dilatations for an indefinite period. Some may require this treatment for as long as they live. Uhle [7] reports that stricture formation is severer in the external urethra than in the membranous urethra above the triangular ligament, and this has proved true in my experience.

COMMENT

The diagnosis of bladder injuries has been discussed with the investigative procedure to be followed in fractures of the pelvis. Such injuries vary from contusions, which require no treatment other than catheter drainage, to lacerations, which require surgical therapy. The procedure at the time of surgery depends on the location and size of the laceration and on whether the lesion is extraperitoneal or intraperitoneal. If, however, a rupture is suspected but cannot be verified, it is preferable to do exploratory surgery than to permit such an injury to go untreated. Exploration is made through a suprapubic incision. In the common extraperitoneal rupture, blood and urine are encountered as soon as the perivesical space is entered. If the rupture is intraperitoneal, then there is no urine in this area, but blood may be present as a result of the pelvic fractures.

In all doubtful cases, the peritoneum should be opened to determine the presence of blood and urine in this cavity. If either is found, the laceration should be located and sutured. Even if an extraperitoneal rupture is found, it is often advisable to open the peritoneum so that associated injuries to other abdominal organs are not overlooked.

Small extraperitoneal lacerations not readly accessible for suturing usually require no more than drainage of the perivesical spaces. These lacerations approximate and heal spontaneously, if the bladder is kept empty. This can be accomplished with an indwelling urethral catheter. The use of a de Pezzer catheter for suprapubic drainage of the urine is usually not necessary in this type of case but may be used if desired. The most important factor is drainage of the extravasated urine.

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6. Ormond, J. K., and Fairey, P. W.: Urethral Rupture at Apex of the Prostate: Complication of Fracture of the Pelvis, J. A. M. A. **149**: 15-18 (May 3) 1952.

7. Uhle, C. A. W., and Erb, H. R.: Reconstruction of the Membranous Urethra: Case Reports, J. Urol. **52**: 42-60, 1944.

REPORT OF CASES

CASE 1.—A white man, 45 years of age, was admitted to the hospital on Nov. 3, 1949, approximately 30 minutes after a large, heavy piece of refrigeration equipment fell on him and crushed his pelvis. Initial examination revealed him to be in extreme shock, with rapid, thready pulse and blood pressure of 40/0 mm. Hg. Plasma was administered, and supportive therapy was instituted immediately. Films of the pelvis revealed complete fractures with fragmentation of the pubic rami on both sides and a fracture of the neck of the left femur. A soft rubber catheter was passed through the urethra, and only a small amount of bloody fluid was obtained. Injection of 150 cc. of 10% iodopyracet (Diodrast) solution was made through the catheter. A film revealed the dye to be extravasated along the lateral wall of the pelvis and nothing simulating a normal bladder outline (fig. 1).

Even though it was evident that this patient's bladder was ruptured, nothing could be done surgically because of the patient's precarious condition. During the next 18 hours, the patient received two units of plasma and 3,000 cc. of whole blood. At the end of this period, it was believed that improvement was sufficient to allow surgical drainage and repair of the ruptured bladder.

On exploration through a suprapubic incision, a large amount of bloody fluid was encountered in the area around the bladder.

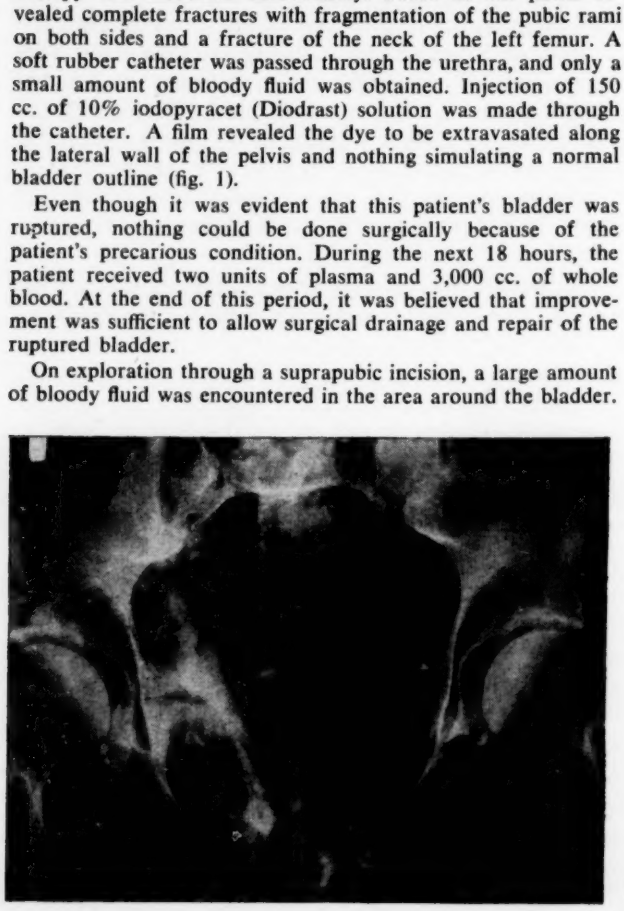

Fig. 1.—Generalized pelvic extravasation of dye with no semblance of bladder outline.

Since the possibility of associated injury to intraperitoneal viscera had not been excluded, the peritoneum was opened. It was closed when no blood or fluid was found. Further exploration in the extraperitoneal pelvic area showed that the prostate was torn free of its fascial attachments and that the membranous urethra was completely severed. In addition, the bladder was almost completely avulsed from the gland; it was still joined only at the trigone (fig. 2). During this procedure, a number of free spicules of bone were removed from the pelvic cavity. The repair was accomplished by passing a Foley catheter through the external and prostatic portions of the urethra into the bladder. The bag was inflated to permit traction. No attempt was made to suture the severed membranous urethra. The bladder was sutured to the superior surface of the prostate gland.

When the patient was returned to bed, tension was applied to the Foley catheter by running a cord from the catheter over a pulley at the foot of the bed and suspending a one-half pound (226.8 gm.) weight at the end of the cord. This constant pull served to approximate the torn membranous urethra until healing could take place. The patient made a slow recovery that was complicated by bilateral bronchopneumonia. After removal of the urethral catheter on the 18th postoperative day, the patient was able to void freely, with complete urinary control. Since then, it has been possible to maintain an urethral caliber of no. 24 French catheter with only intermittent dilatations.

This case demonstrates not only the likelihood of repair but the prospect of obtaining a good functional result even in the severest bladder and urethral injuries. It also reemphasizes the value of the Foley catheter as a traction agent in reapproximation of the urethra in cases in which suturing is impossible or not feasible.

CASE 2.—A 25-year-old white man was admitted to the hospital on Oct. 29, 1949, about eight hours after injury. He stated

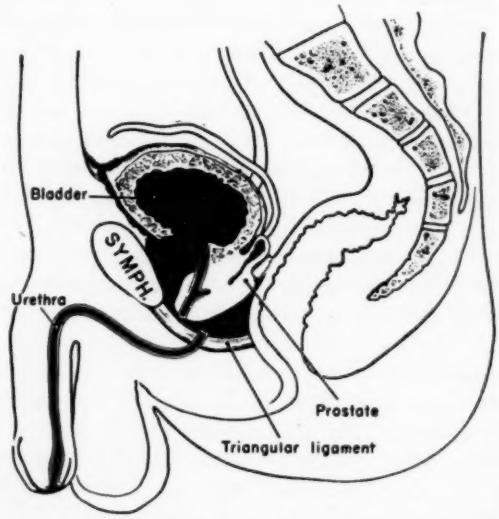

Fig. 2.—Schematic drawing of injuries to bladder and urethra

that he was riding on the fender of a dump truck when he slipped and fell to the ground and the back wheels of the truck passed over his pelvis.

On admission, the patient was in mild shock, so measures were taken to correct that condition. Films of the pelvis revealed multiple fractures. A Foley catheter was introduced, and 400 cc. of grossly clear urine was obtained; however, microscopic examination revealed that it contained many red blood cells. Urologic consultation was not requested since it

Fig. 3.—Cystogram showing small amount of dye extravasated in region of membranous urethra.

was believed that the patient had a contused rather than a ruptured bladder because of the large amount of urine obtained at the initial catheterization and because the urine was not grossly bloody.

I first saw the man on Oct. 31, 1949, two days after his injury, because the urine draining from the indwelling catheter had become increasingly bloody. Examination revealed the patient to be acutely ill, with a fever of 102 F. There was some

tenderness and slight rigidity of the lower abdomen; this was more pronounced on the right side. Palpation of the scrotum disclosed generalized tenderness and induration of the entire sac. Auscultation of the chest revealed numerous rales throughout both lungs. A cystogram showed the general bladder outline to be normal but extravasation of the dye low on the right side of the pelvis (fig. 3). These findings, together with the indurated scrotum, indicated that patient had a tear in the membranous urethra extending both above and below the triangular ligament.

It was decided to treat this patient conservatively because (1) his general condition was not good, (2) he had evidence of a developing pneumonia, and (3) as he had had an indwelling catheter since his initial examination, the extravasation of urine had been held to a minimum. Pneumonia with atelectasis of the right upper lobe did develop, but the patient recovered from this as well as from his other injuries. The urologic complications cleared without treatment other than catheter drainage.

The course of treatment followed in this case is certainly not recommended except in the rare instance in which it is believed that the shock of a surgical procedure may do the patient more harm than good. It does emphasize, however, what can be accomplished by diversion of the urine and chemotherapy, if the occasion demands. It also demonstrates the value of leaving the catheter inserted until the condition of the urinary tract is fully determined.

CASE 3.—A white boy, 2 years of age, was struck by an automobile about 10:30 a. m. on Aug. 10, 1949. He was given emergency treatment at the Denver General Hospital and then transferred to Porter Hospital. Roentgenograms revealed fractures of the left clavicle, of the fourth, sixth, seventh, and eighth ribs on the left side, and of both ascending pubic rami.

The boy was treated for severe shock, but injury to the bladder was not suspected until eight hours later, when he voided 15 cc. of bloody urine. Urologic consultation was requested, and an intravenous pyelogram was done, since the patient was no longer in shock. This pyelogram disclosed extravasation of the dye to the right of the normal bladder outline (fig. 4). He was immediately taken to surgery where exploration disclosed a large amount of bloody urine in both lateral extravesical spaces. A bluish discoloration was noted under the peritoneum, and, on opening the peritoneum, free blood was encountered. Further exploration disclosed transverse laceration of the spleen. The patient's condition was so poor that splenectomy was not considered; the laceration was packed with oxidized cellulose (Hemo-Pak) and the peritoneum closed. A de Pezzer catheter was inserted in the bladder, and no attempt was made to close the laceration. The patient had a very stormy course for the first four days and then improved rapidly. The catheter was removed on the 10th day, and the suprapubic sinus healed spontaneously. He was discharged on the 14th hospital day for convalescent care at home.

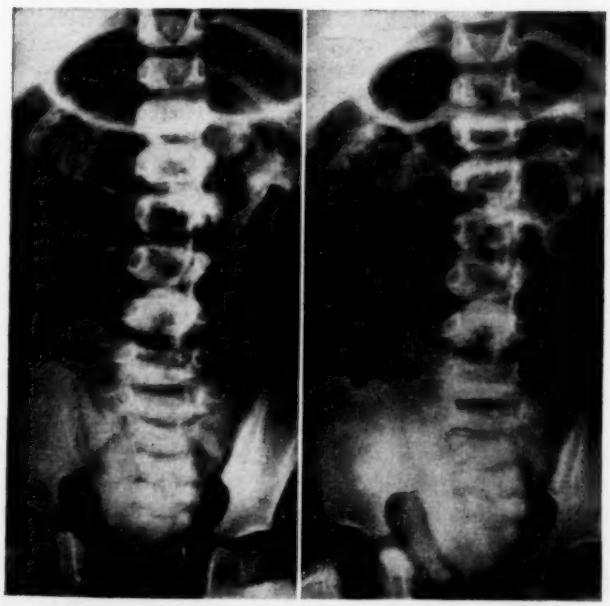

Fig. 4.—Intravenous pyelograms revealing dye extravasated along right side of bladder.

This case emphasizes the importance of intraperitoneal exploration at the time of surgery even though an extraperitoneal rupture of the bladder is found. It also demonstrates the value of intravenous pyelography as a diagnostic agent.

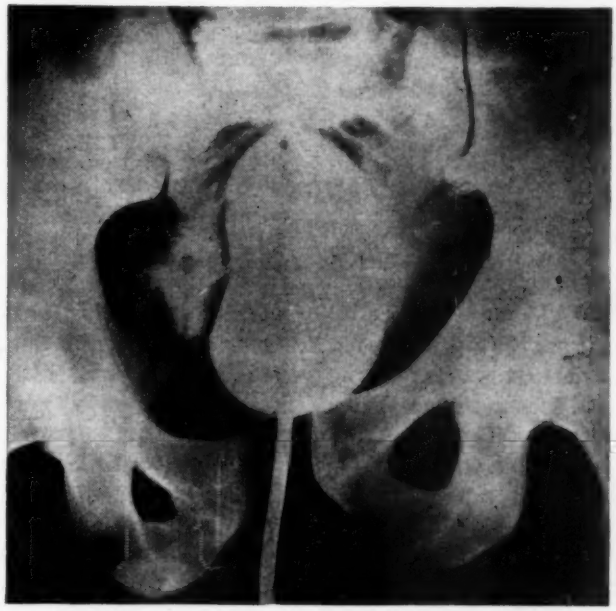

Fig. 5.—Cystogram showing extravasation of dye with bilateral vesical tears.

CASE 4.—A white man, 31 years old, was admitted to the hospital on Nov. 19, 1947, approximately eight hours after a large log had rolled over his pelvis. His only complaint was pain in the suprapubic area; examination disclosed marked tenderness in this area. There was no evidence of shock. Roentgenograms revealed separation of the symphysis, with displacement of the sacroiliac joints. A soft rubber catheter was passed easily, and 375 cc. of slightly blood-tinged urine was obtained. Films made after injection of the dye showed a bilateral extravasation (fig. 5). Repair of the lacerations was done through a suprapubic incision, and Penrose drains were left in both lateral perivesical spaces. The bladder was drained with an indwelling urethral catheter. After this procedure, the patient made an uneventful recovery.

This case emphasizes the fact that there can be extensive injury to the bladder,[8] even though a large amount of relatively clear urine is obtained on catheterization.

CASE 5.—A Spanish-American man, 38 years of age, was working on the roof of a building when he slipped and fell approximately six feet and landed astride a 2 by 8 in. joist. When he was admitted to the hospital on Sept. 16, 1952, about two hours after injury, he complained of pain in the perineum and a constant desire to void but inability to do so. Examination disclosed no evidence of shock, although there was profuse bleeding from the urethral meatus. There was a large hematoma involving the perineum and the inner aspect of the left thigh. A fracture of the left descending pubic ramus was revealed roentgenologically. It was evident that this patient suffered severe trauma to the urethra, with partial or complete rupture. In order to determine the extent of the injury, attempts were made to pass straight and coudé catheters, but both were obstructed in the bulbous portion of the urethra. The patient was taken to surgery where preparation had been made to do a suprapubic exploration, if another attempted catheterization was unsuccessful. A spinal anesthetic was administered, and

8. Prather, G. C., and Kaiser, T. F.: The Bladder in Fracture of the Bony Pelvis: The Significance of a "Tear Drop Bladder" as Shown by Cystogram, J. Urol. 63: 1019-1030, 1950.

gentle attempts were again made to pass a catheter. A no. 16 coudé soft rubber catheter was inserted rather readily in the bladder and taped in place. The indwelling catheter was removed on the 10th day; after that, the patient was able to void freely with normal control. By this time the hematomas in the perineum and on the thigh had been almost completely absorbed and did not require incision and drainage.

This case demonstrates the advantage of the use of anesthesia in some instances of urethral injury in which catheterization is unsuccessful otherwise. It also emphasizes the value of chemotherapy in the treatment of these cases. This patient would have undoubtedly had a stormy course with infection around the catheter and in the areas of hematoma if it had not been for these drugs.

SUMMARY

The frequency of urinary tract injuries associated with fractures of the pelvis demands that every such case be investigated for this complication. A suggested diagnostic procedure is outlined. An analysis of 357 cases of pelvic fracture shows that genitourinary complications do not increase the mortality rate of these injuries. Individual case histories illustrate the manner of treating these complications and the role of chemotherapy in reducing mortality and morbidity.

915 Republic Bldg. (2).

RESPIRATORY DISORDERS AMONG WELDERS

Robert Charr, M.D., Philadelphia

Welding is a method of fusing metals in which an electric arc is formed between a metal electrode and the material to be welded. During the process the electrode melts and forms a bond. The electrode is made of the same metal as that being welded. The commonly used electrode is steel, which, on heating, gives off fumes containing particles of iron oxide measuring 0.5 millimicron in diameter. The electrodes usually are coated, and the coating, on heating, forms a gaseous cone that prevents the molten metal from evaporating too readily. The composition of the coating varies, but fluorides, silicates, borates, aluminum, cadmium, and chromium are found in different products. Of these, fluorides and cadmium are the most irritating, and there is reason to believe chromium may be carcinogenic.

The fumes of welding, particularly those arising from fluorides, cadmium, and chromium, are irritating to the mucosa of the respiratory tract. Cough, expectoration, chest pain, sense of oppression about the thorax, and hemoptysis with fever known as metal fume fever may develop as an acute reaction. These symptoms subside on avoidance of exposure to the fumes. If the exposure is continued, roentgenologic changes in the lungs, such as exaggerated linear shadows in some and nodulation in others, may occur. The increased linear markings and the nodulation seen in roentgenograms apparently are due to deposition of ferrous particles within the perivascular and peribronchial lymphatics. It is generally believed that these pulmonary changes are not disabling. In occasional instances, however, they may be harmful.

REPORT OF CASES

CASE 1.—W. M., a 61-year-old man, had done welding for 12 years, using only steel electrodes. In 1949, dyspnea became so pronounced that it was difficult for him to continue working. In addition to dyspnea he had cough, expectoration, and pain in his chest. In 1952, it was necessary for him to discontinue working. Physical examination showed an undernourished man with cyanosis and respiratory rate of 40 per minute. The chest was rounded and showed the signs of emphysema. A chest roentgenogram suggested diffuse pulmonary fibrosis throughout both lungs, characterized by exaggeration of the lung markings without definite evidence of nodulations (fig. 1). The lower third of each lung appeared emphysematous. The heart was long and narrow, and the diaphragm was depressed on both sides.

CASE 2.—C. D., a 50-year-old man had been a welder for 24 years. His complaints were dyspnea, cough, expectoration and sensation of oppression in his chest. The principal findings were pronounced cyanosis and clubbed fingers. The chest was rounded, and there was very little expansion of the chest on inspiration. Throughout the lungs were sonorous rales. The respiratory rate at rest was about 40 per minute. A chest roentgenogram showed exaggeration of the lung markings in the lower half of each lung, particularly about the hilar areas. In addition, there was some fibrosis in the right upper lobe in the first interspace. In the right lower lobe near the heart were scattered fine deposits. The diaphragm was depressed on both sides.

CASE 3.—H. C., a 50-year-old man, had been a welder for six years, working mostly with steel. At times he worked with galvanized metal, which contains lead. His chief complaints were shortness of breath on exertion, cough, expectoration, and constant sensation of oppression in his chest. The roentgenogram (fig. 2) showed exaggerated tissue markings throughout both lungs, particularly about the hilar regions. In addition, there were fine nodular deposits in the lower half of each lung. Although the patient was ambulant, he had constant substernal discomfort. After he had done no welding for six months, he had another roentgenologic examination. Some of the changes noted earlier had disappeared.

These three men found it difficult to continue working as welders. Although it was not possible to carry out accurate tests such as pulmonary function studies and biopsies of the pulmonary tissues, there was no doubt as to the severity of their symptoms. It is true that the symptoms are those of emphysema, not necessarily related to welding; therefore, one may question the validity of incriminating their occupation.

CASE 4.—J. G., a 34-year-old man, had been a welder for some years. A roentgenogram (fig. 3) showed diffuse nodular deposits throughout both lungs, almost typical of changes seen in the second stage of silicosis.

CASE 5.—E. G., a 59-year-old man, had been a welder for a number of years. The roentgenogram showed exaggerated pulmonary markings throughout both lungs, with scattered fine nodulation on both sides.

These two men, despite lung changes and other related symptoms, were able to continue working, although under some difficulty.

Presented at the Regional Meeting of the American College of Chest Physicians, Philadelphia, May 7, 1953.

From Jefferson Medical College, Philadelphia Tuberculosis and Health Association, and Pennsylvania Hospital.

CASE 6.—G. D., a 35-year-old man, had been a welder for over 15 years, working chiefly in confined spaces such as submarine chambers. Most of the time he used steel electrodes. His chief complaints were cough, expectoration, pain in the chest, and shortness of breath on exertion. Physical examination showed cyanosis of the lips and fingernails. The chest was normal in shape, but expansion was poor on both sides, with

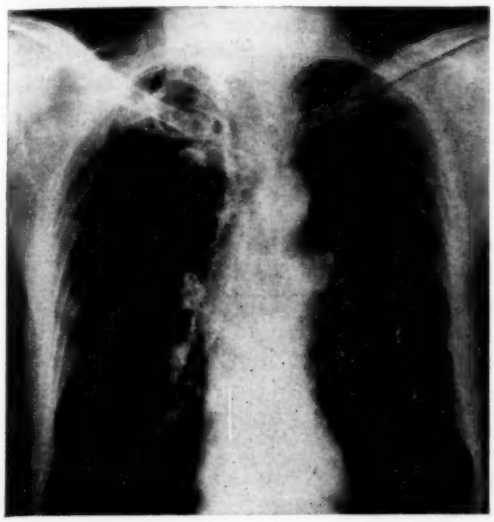

Fig. 1 (case 1).—Roentgenogram showing emphysema and possible pulmonary fibrosis.

dullness over the upper lobe of each lung. Over the entire chest the breath sounds were exaggerated, with occasional musical rales over the upper lobes. The roentgenogram showed considerable fibrosis in both lungs, particularly in the upper lobes. Sputum examinations were positive for acid-fast organisms. After six months of complete bed rest with antimicrobial therapy, the patient improved sufficiently to return to work. At present he is symptom free aside from persistent substernal discomfort and dyspnea on exertion.

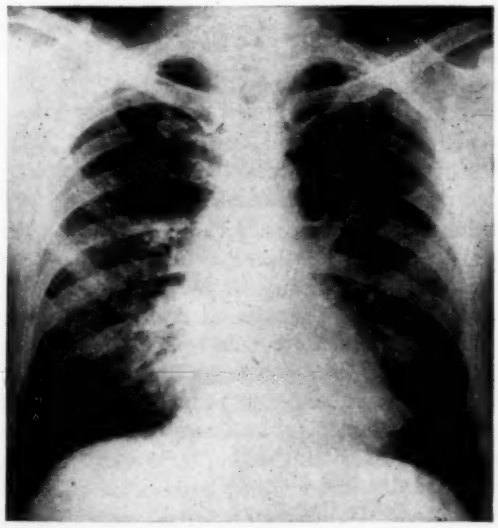

Fig. 2 (case 3).—Roentgenogram showing diffuse changes in the middle third of each lung.

CASE 7.—A. G., a 45-year-old man, had been a welder over 16 years. Most of the time he used steel electrodes, but on several occasions he used chrome electrodes, the fumes of which made him extremely uncomfortable. The discomfort was entirely due to choking sensation, difficulty in breathing, and substernal pain. In 1942 he was found to have acute tuberculosis involving the left upper lobe with cavitation. Thoracoplasty was done. During the past seven years he has been working full time as a welder without relapse.

Tuberculosis does not appear to be a frequent complication of pulmonary changes in welders, although there are no large statistical studies on this subject. The clinical course of tuberculosis in welders appears about the same as that in the general population.

COMMENT

Doig and McLaughlin [1] and Enzer and Sanders [2] described pulmonary changes seen in chest roentgenograms of welders. They pointed out that the changes were indistinguishable from those in silicosis; however, in persons with silicosis the changes are permanent, but in welders, on cessation of exposure, the changes may disappear as noted in case 3.

Iron dusts are generally considered inert when inhaled into the lungs. The particles are deposited in the lymphoid tissues and do not cause fibrosis or serious tissue changes.

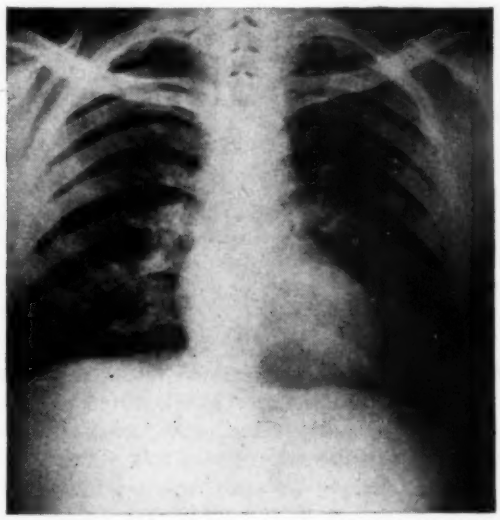

Fig. 3 (case 4).—Roentgenogram showing nodulation in both lungs.

Roentgenologic lung changes have been produced experimentally in animals, but the tissues showed no fibrosis or other reaction. Enzer [3] did a post mortem of the lungs of a welder and found deposits of particles in the perivascular and peribronchial lymphatic spaces but found no fibrosis, as in silicosis.

There is no functional impairment of the lungs with such iron deposits, either in appearance of clinical symptoms or in susceptibility of the patient to complicating infections. The condition is not crippling as is silicosis. Once the exposure is stopped, the disease does not progress. Many welders have cough and expectoration but no dyspnea. They have good chest expansion and good tolerance for exercise. In short, inhalation of welding fumes is not seriously incapacitating. Enzer [3] had agreed that inhalation of iron dust produced by welding opera-

1. Doig, A. T., and McLaughlin, A. I. G.: X Ray Appearances of the Lungs of Electric Arc Welders, Lancet **1**: 771, 1936.

2. Enzer, N., and Sander, O. A.: Chronic Lung Changes in Electric Arc Welders, J. Indust. Hyg. & Toxicol. **20**: 333, 1938.

3. Enzer, N.: Personal communication to the author.

tions did not produce fibrosis but recently, after examining two disabled welders, was less inclined to accept the idea that pulmonary disability never results.

Doig and Duguid [4] studied 240 welders, and their conclusion was that most of the welders had some irritation of the throat as well as the larynx. The incidence of nasal catarrah and frequent colds was higher among welders than in the general population. Cough, expectoration, and discomfort in the chest, together with the physical signs of emphysema, were common. In a group of welders with a long duration of employment, particularly those who had worked in confined places, abnormal roentgenologic changes that could not be differentiated from silicosis were frequently noted. It was found, however, that on cessation of exposure to welding fumes these changes disappeared, which suggests that the iron particles were inert and easily removed by the phagocytes. Among these 240 welders, the incidence of tuberculosis and other serious pulmonary diseases was not greater than would be expected in the general population. Doig and Duguid concluded that inhalation of welding fumes, particularly fumes containing iron oxide particles, was not disabling but could cause acute respiratory symptoms that subside on cessation of exposure. Commenting on cases 1, 2, and 3, Doig [5] suggested that disability might not be due entirely to iron oxide dusts but perhaps to inhalation of fumes arising from the coatings of the electrodes, which may contain noxious material.

According to Carnahan,[6] in the 1950 U. S. census there were about 276,000 persons in the United States engaged in electric arc welding, almost 10,000 of whom were women. The incidence of serious siderosis in welders is low, but it does exist. Clinical and physiological studies as well as histological examinations of pulmonary tissues in suspected cases may clarify the problem. The question of disability is important not only from the viewpoint of the patient but from the standpoint of occupational diseases.

SUMMARY

The clinical and roentgenologic findings in seven welders with respiratory disorders are described. In three the symptoms were sufficiently serious to necessitate a change of occupation. Biopsy of the pulmonary tissues and studies of pulmonary function may aid the study of this condition.

2038 Locust St.

4. Doig, A. T., and Duguid, L. N.: The Health of Welders, London, H. M. Stationery Office, 1951.

5. Doig, A. T.: Personal communication to the author.

6. Carnahan, W. J.: Statistical Research Dept., Philadelphia Tuberculosis and Health Association.

INTERDEPENDENCE OF THE MEDICAL PROFESSION AND THE PHARMACEUTICAL INDUSTRY

Elmer L. Sevringhaus, M.D., Nutley, N. J.

Let us first admit two obvious facts: the physician depends on pharmaceutical manufacturers to produce useful and dependable drugs, and the manufacturers depend on physicians to prescribe and use drugs whenever a therapeutic advantage may be anticipated. Implicit in these statements is a surprising variety of topics for discussion.

Let us turn back to the year 1724. I choose this date because it appears on the title page of a small volume I cherish, entitled "Mr. Boyle's Receipts." The same John Boyle, whose statement of the interrelationship between pressure and volume of gases is the familiar Boyle's Law, was a therapeutically minded chemist. He assembled numerous directions for preparing remedies and then solicited trials of their efficacy by the physicians of his day. Remedies that gained sufficient approval were published in the volume referred to above. Following are a few examples of what the physician could expect from his local pharmaceutical manufacturer in 1724.

LXII. *An uncommon, but try'd Remedy for* Cholicks *(without much matter) and good in Fits of the Mother.*—Take good Ginger dry, and instead of powdering it, cut it into as thin Slices as you easily can: With these fill a Tobacco-Pipe, and take the Smoak as you would that of Tobacco. Do this twice, thrice, or 4 Times a day, but especially at Bedtime, and in the Morning.

LXIII. *An excellent Medicine for* Convulsive Cholicks.—Take of the Volatile Salt of Pidgeons Dung 2 or 3 Grains, or somewhat more (not exceeding 5 or 6 in all) mix these with a Scruple or half a Dram of the fame Dung crude, but well and slowly dry'd, and finely powder'd. Give this Mixture for 1 Dose in some Spoonfuls of any convenient Vehicle.

CXIII. *An uncommon, but experienc'd Remedy for* Dysenterical Fluxes.—Take the Bone of the Thigh of a hang'd Man (perhaps another may serve, but this was still made Use of) calcine it to whiteness, and having purg'd the Patient with an Antimonial Medicine, give him 1 Dram of this white Powder for 1 Dose, in some good Cordial, whether Conserve or Liquor.

CXLI. *An experienc'd Medicine for the Pains of the* Hæmorrhoids.—Take the Sole of an Old Shoe, worn by some Man that walks much, cut it in Pieces, and burn it, not to white or grey Ashes, but to a fryable and tender Coal; reduce this to impalpable Powder, and then with a sufficient quantity of unsalted Lard, make it into an Unguent.

A century later a chemical discovery was made that led ultimately to replacement of the human bone, shoe leather, pigeon's dung, and even the ginger by synthetic chemicals. The discovery by Wöhler, in 1828, of the synthesis of urea from inorganic materials was the initial step in the enormous development of organic chemical synthesis. No longer do we use natural oil of wintergreen; we prescribe one of a number of synthetic derivatives of salicylic acid. For treatment of gonorrhea we may choose between synthetic sulfonamides or penicillin. Although the antibiotics may be considered products of decomposing organic matter, they are more properly thought of as pure substances manufactured by skillfully guided biological processes. The skillful supervision of these processes and the subsequent purification that makes the antibiotics so dependably useful in therapy are among the facilities that modern pharmaceutical manufacturers provide. It is not necessary to enumerate further examples of the application of chemical, physical, and biological science to the manufacture of drugs. Modern

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drugs are identified chemical compounds, which now dominate our pharmacopoeias and compendiums of new drugs.

DEVELOPMENT OF NEW DRUGS

Where have new drugs originated? Until 30 years ago the laboratories of the universities were almost the only places where such chemical discoveries or inventions were made. Within the last three decades we have witnessed the rise of a new type of research laboratory, housed in and supported by the various and independent units of the modern pharmaceutical industry. The majority of new drugs are now coming from these industrial laboratories. We may ask why a function developed by the universities has been transferred so largely to industrial organizations.

Specialization of scientific and technical skills, although frequently deplored, has been essential to much of this development. Along with specialization there is an indispensable collaboration among chemist, pharmacologist, bacteriologist, pathologist, physicist, and engineer. But we cannot stop here. Until the products of these collaborating workers have been evaluated critically by physicians who use the chemicals as drugs to treat illness, they are not ready for general use by the medical profession. Here we find an essential role for physicians.

The last two decades have seen the development of at least two specialized services by physicians that are indispensable to the manufacturer of pharmaceuticals. The pharmacologist must determine the characteristics of biological activity of new compounds, including toxicity and undesirable actions. Without the use of laboratory animal testing the pharmaceutical industry would be impotent. This type of study, beginning with mice and rats, is never complete until human pharmacology is included. This latter step provides the first of the opportunities for the staff in clinical investigation. These physicians occasionally have hospital staff positions that enable them to make clinical observations at first hand. More often they establish arrangements for studies of new compounds with experienced physicians who have no direct connection with the pharmaceutical firm.

The medical profession in general and the public usually are not familiar with the work of physicians in the pharmaceutical industry or the special qualifications they must have. These men usually are qualified in clinical medicine and in addition have a background in clinical research. Such training becomes of greater value as experience is gained in the special kind of clinical investigation required in the drug industry. These men bridge the gap between the laboratory and the clinic and must be capable of evaluating animal results with a new compound in terms of its first human trial. The first human application is often accomplished under the personal supervision of the physician in industry. Thereafter, promising compounds are widely placed with other clinical investigators to be tested further before general use of them can be recommended. Obviously, years of contact with the medical profession are necessary to build up clinical connections of such quantity and quality that adequate evaluation of new drugs can be completed without delay. The qualifications for men who occupy posts in clinical research in the pharmaceutical industry are: a doctor's degree in medicine; internship and residency; clinical experience; research training, preclinical or clinical; a high standard of scientific ethics; an imaginative concept of drug therapy; ability to write and to speak; liking for people and travel; and willingness to consider opinions of others.

On these physicians rest the varied responsibilities concerning experimentation on human beings. An extensive discussion of this problem was recently published in *Science*.[1] I need not take time to stress the obvious features of safety of the patient, correct determination of dose, and a follow-up for cumulative or chronic effects as well as for immediate results from use of a new drug. Attention should be directed to a more elusive question, that of the adequacy of evidence upon which to establish the efficacy of any new therapy.

QUALIFICATIONS FOR APPROVAL

The intense competition among pharmaceutical manufacturers makes it certain that ultimately only the superior products will be prescribed by physicians. But much time and valuable advantage to health may be lost if use in practical therapy must achieve these ends. Consequently there is rapidly growing emphasis on objective means for diagnosis and on estimation of improvement. Since both of these methods are often difficult to carry out in clinical medicine, two other devices are invoked: statistical treatment of data from observations on many patients who receive a new drug and the "blind test." This latter means that neither physician nor patient knows when the drug in question is being given or when an accepted drug or an inactive tablet has been substituted for comparison. It is obvious that safe and competent planning of such clinical research is of vital importance to both manufacturers and physicians.

The need for these rigidly controlled studies has become increasingly evident as we have progressed from producing drugs that are the traditional "specifics" to those that alleviate symptoms or modify the course of disease without effecting a cure. To the psychologist or psychiatrist this need for controls is logical. But to the physician, whose therapy is supposedly directed mainly toward objective changes, we must continually put the question, "How sure are you that the symptomatic response was caused by the drug and was not merely a coincidence?" This type of question is not popular with most physicians, but unless we continue to ask it we shall repeat the error of misplacing our faith in worthless remedies. Every experienced physician realizes how pain may be increased or abated, even brought about or abolished, at times, by changes of mood or attention. Does this make pain any less real? Not to the sufferer. We must recognize the fact that pain is a subjective phenomenon. No one has been able to measure pain itself. But by use of "blind tests" involving new drugs, accepted drugs, and completely inactive substitutes, and with statistical study of the results, dependable conclusions can be drawn. These may include the type of pain relieved, the probable usefulness of a new compound, and the recommended dosage. "Blind testing" must also be relied on for the numerous remedies proposed for relief of all types of functional disorders.

1. Shimkin, M. B.; Guttentag, O. E.; Kidd, A. M., and Johnson, W. H.: The Problem of Experimentation on Human Beings, Science **117**:205-215 (Feb. 27) 1953.

Physicians who use new drugs with critical eyes can help determine a great variety of unexpected or, sometimes, untoward reactions. Occasionally a few such phenomena can be predicted on the basis of studies made on laboratory animals. The pharmaceutical manufacturer depends on physicians using new drugs to report all results observed, whether good, bad, or merely nuisance phenomena. Physicians too often hesitate to report any but successful experiences with a new compound; however, unfavorable but factual reports are not considered complaints. Prompt, accurate information on untoward or unnecessary results is equally as important as tabulations of benefits derived from a new drug. Physicians owe a duty to each other as well as to the manufacturer to look for and report all the clinical phenomena that follow use of any new type of treatment. Large pharmaceutical firms maintain staffs of physicians and assistants whose time is devoted largely to correspondence with other physicians on the innumerable questions that arise during therapy, whether with new or old drugs.

After the pharmaceutical manufacturer has assembled evidence on several features of a new drug, he may formally propose to the United States Food and Drug Administration that the drug be placed on sale. Prior to favorable action by the officers of this agency the new preparation may be distributed only to investigators whom the manufacturer lists as competent to study the effects of the drug in patients. Evidence that must be submitted to the Food and Drug Administration includes data on chemical composition, procedures used in manufacture, methods for assay as to potency and purity, data from studies in laboratory animals showing activity and toxicity of the drug, data from clinical trials demonstrating safety of the proposed dosage, evidence that the drug has least probable therapeutic value, and a statement of the claims to be made in labeling and in promotional literature.

Sound, prompt judgment on all these matters requires a large professional staff of high quality. Many men in the pharmaceutical industry feel an urgent need for greater funds to enable the Food and Drug Administration to train professional personnel. The activity of this agency is our most uniform guarantee of standards of purity, accuracy, and safety. This governmental agency is not charged with verifying all data and claims made. The Administration may inspect laboratories and plants, interview investigators, and make such laboratory examinations of the drug as judgment directs and facilities permit. It was clearly not the intention of Congress, which created this organization in 1938, that the medical officers of the Food and Drug Administration make clinical studies to determine either the safety or efficacy of new drugs. It should be noted that the Administration never endorses a new drug; it merely permits the manufacturer to proceed with sale of the drug under legally standardized methods of labeling. Approval must be gained directly from the physicians to whom the manufacturer presents his product.

Manufacturers rely on four chief approaches to the attention of the prescribing physician: journal articles, journal advertising, direct mail advertising, and the calls by "detail men." It is apparent that a large expenditure of thought and money is involved. Factors that have compelled producers to use such extensive promotional efforts are the number of new drugs, rapid evolution of medical practice to include objective methods of diagnosis, increase in specialization, and the competition inherent in our free enterprise system. With such a complicated situation no single method can be expected to carry the news of a new drug to all physicians. The manufacturer depends on the physician's professional desire to keep well informed. Each physician must choose the channels of communication within the profession to which he can give a bit of his precious time and attention. Unless this contact between the producer and prescriber is made, a new drug remains merely a new chemical on the shelf.

The members of the medical profession have provided a most important agency for discrimination and education in the matter of new drugs. The American Medical Association maintains a standing Council on Pharmacy and Chemistry. The members are pioneers in the effort to have approval accorded to drugs only when the evidence is adequate to convince men who are scientifically critical. This body serves without compensation at considerable expenditure of time and thought. Their contribution is another example of the noblesse oblige of which our profession is proud. Although at times manufacturers may experience delays or adverse decisions of the Council on Pharmacy and Chemistry, no one desires to discontinue this function of the American Medical Association. On the contrary, we cherish the right of a nongovernmental and extralegal group of physicians to make public their judgments about the products of pharmaceutical industry. The Council has been an important factor in the progress of American drug production.

EDUCATIONAL AND RESEARCH NEEDS

Another problem that is a mutual concern of the physician and the producer of drugs is the status of the educational process that provides physicians for our country's needs. How shall we provide clinical investigators we all demand? How can we augment our supply of trained pharmacologists? We also need chemists, engineers, accountants, executives, lawyers, writers, and all sorts of specially trained men.

Furthermore, let us admit frankly that were we to depend solely on the productivity of men in applied sciences and technology for the invention of new drugs, our progress would soon falter. The intimate although unpredictable dependence of these workers in the chemical and biological laboratories of industry on the fundamental contributions in physics, chemistry, biology and mathematics must not be overlooked. From even the point of view of the practicing physician or the producer of drugs we must regard all search for truth as worthy of our support. For all its man-made compartments, knowledge of truth admits no sharp boundaries between the disciplines that comprise a real university. This need for educational and research facilities in our universities is not peculiar to pharmaceutical industry or to medical science. It is fundamental to our evolving culture.

We must expect that the cost of such education and research will be borne not by a small segment of our

people or our industries but by all of us. In this connection it may be noted, for example, that food manufacturers have reported sales 50 times as great as those of drug manufacturers in the United States. Food science and technology and many other industries also require research and technically trained personnel. Instead of special levies on specific industrial groups, educational funds are increasingly being provided by taxes, to which all industry contributes so largely.

On every hand one hears the suggestion that the pharmaceutical industry make larger contributions to medical education. I do not know whether the contributions now being made are adequate or fair; however, certain facts may be significant. Reports from the larger firms indicate that they are spending 5 to 6% of current income on research. The data further indicate that expenditures for research by producers of industrial chemicals are much smaller. Research funds in the pharmaceutical industry far exceed dividends to stockholders. This 5 or 6% for research is not considered a gift; it is an investment to provide future production. Although the major share of this money must provide for research in the manufacturers' laboratories, a portion is being used to meet the cost of research in universities and hospitals. Usually these grants provide for special expenses incurred by clinical investigators who accept the responsibility for studying a new drug. It may be noted that at present most such studies are not made conditional on grants by industry. When extraordinary expenditures are involved, of course, the manufacturer expects to meet the costs.

But the universities and larger hospitals are asking also for undesignated grants, funds to be applied to research at the discretion of the staff and not of the donor. We who direct clinical research and maintain extensive contacts with the medical schools and hospitals are keenly aware of the urgent need for such funds. But how far can the pharmaceutical industry go in meeting the need? A recent proposal envisages establishment in each medical school of a chair in clinical pharmacology. To provide the stipends for a trained investigator and for a staff to render his efforts effective an annual budget of $15,000 is requested. The plan and the objectives are not only reasonable but are urgently needed. We now have 72 medical schools in the United States. Can we expect to provide $15,000 chairs of clinical pharmacology in each of the 72? If not, who shall decide which schools shall have them?

Suggestions have been made that this type of support be provided by the trade organizations of pharmaceutical industries. Again certain facts are of importance. The U. S. Food and Drug Administration reports over 1,300 manufacturers of drugs that enter interstate commerce. But of these not more than 30 appear to be units with income large enough to make possible significant contributions to a program supporting research. These manufacturers are engaged in a competitive enterprise; thus if we are to have 72 chairs at $15,000 each, who shall determine the "voluntary" contribution of each firm? And if by some miracle of wisdom and good fortune this financial puzzle should be solved at once, which chair in the medical schools would be the next candidate for such annual support?

One method for meeting the need in clinical research and testing of new remedies has been suggested by those who are enthusiastic supporters of governmental activity. In recent years a magnificent and tremendous expansion of the facilities of the National Institutes of Health at Bethesda, Md., has been undertaken. This year the elaborate hospital, equipped both for patient care and for a great variety of laboratory studies, will be opened. An impressive group of the country's able investigators is being assembled to pursue studies extending from embryology to gerontology and pathology. Why not add clinical studies of proposed new drugs to the tasks assigned to the appropriate staff members? Obviously any manufacturer would gladly accept the opportunity to have his new drugs studied here. But the magnitude of the problem of examining new drugs precludes any possible adequate handling by even the imposing and growing National Institutes of Health. Furthermore, many feel that it is out of order to assign such functions to the government exclusively or even predominantly. These functions have traditionally been a part of free and competitive enterprise on the part of the manufacturers and of individual and independent judgment on the part of physicians. Assignment of clinical research to a government agency would remove the testing process far from the grass-roots of medicine.

These problems are neither simple nor insoluble. They are of great importance to physicians and pharmaceutical manufacturers alike. As we recognize the mutual interests of these two groups it is hoped that we may explore more actively the paths for extended travel. Our goals are fundamentally the same: the best treatment for patients.

Roche Park.

Emergency Tracheotomy.—An emergency tracheotomy is indicated for severe respiratory obstruction when facilities for intubation for the relief of the obstruction are not immediately available. . . . In order for the emergency tracheotomy to be successful an airway must be established beyond the respiratory obstruction which is producing suffocation, and the opening must be kept patent until respirations are re-established. . . . The physician should recognize at a glance the symptoms of marked obstructive dyspnea, that is, the ashen gray color or cyanosis, the labored, stridulous breathing and the retraction of the suprasternal notch and the supraclavicular fossa. The physician must realize that the obstruction will be fatal in a few minutes and therefore he must act immediately. . . . The patient is placed on his back with a pillow or pad under the shoulders and the neck extended. The thyroid notch and the ring of the cricoid are easily located by palpation. The thumb, second and third fingers of the left hand are arched over the larynx, and the soft tissues of the neck below the larynx are pressed backward on each side of the trachea, tightening the skin over the trachea below the cricoid ring. A bold, deep incision is made longitudinally in the midline from the cricoid ring downward, quickly cutting through all the tissues, exposing the tracheal rings. Should there be any difficulty in locating the midline of the trachea in the pool of blood, it can be palpated by the index finger. The incision is carried through the tracheal ring, preferably below the first ring. The tracheal incision is held open by forceps, knife handle or retractor of any type available to produce a free airway. The patient is turned on his side so that the blood will not run into the tracheal opening, and a tracheal cannula is procured. Artificial respiration is given and oxygen administered, if available, until the normal respiratory cycle is resumed.—W. B. Hoover, M.D., Emergency Tracheotomy, *Surgical Clinics of North America*, June, 1953.

CLINICAL NOTES

RUPTURE OF ABDOMINAL WALL THROUGH STRIA DISTENSA DURING CORTISONE THERAPY

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Striae, or lineae cutis distensae, are band-like lesions associated with stretching of the skin. Although they occur oftenest during pregnancy, they are also found in other conditions, such as ascites. This is a report on a tuberculous patient treated with pneumoperitoneum who later had nephrosis, massive ascites, and striae. While he was being treated with corticotropin and cortisone, the striae became enormous, and one of them ruptured spontaneously, forming a peritoneocutaneous fistula. This case is reported because a survey of the literature fails to reveal records of any similar ruptures of the abdominal wall and because of the possible role of corticotropin and cortisone.

REPORT OF A CASE

A 27-year-old white man became ill in January, 1949, with productive cough and malaise. After a series of hemoptysic episodes in June, 1949, he was examined and found to have Mycobacterium tuberculosis in his sputum, and bilateral apical infiltrations seen on a roentgenogram. In July, 1949, the patient was admitted to a county hospital where pneumoperitoneum was initiated, and he was given streptomycin, 2 gm. weekly intramuscularly. In January, 1950, he was transferred to a Veterans Administration hospital, where he remained until Oct. 19, 1951. During this period pneumoperitoneum was continued, and he received courses of streptomycin, *p*-aminosalicylic acid, and amithiozone (Tibione). He received a total of 92 pneumoperitoneum refills. In January, 1951, albuminuria was noted. Peritoneal fluid was first noted fluoroscopically on Oct. 12, 1951, although it may have been present in smaller amounts for some months. Three days later a paracentesis was done, and 1,500 cc. of yellow, opalescent fluid was aspirated. The patient was transferred to the San Fernando Veterans Administration Hospital on Oct. 19, 1951.

On admission he appeared acutely ill and much older than his age because of numerous facial wrinkles. His skin generally was atrophic and showed patches of brownish pigment, especially around the lips. The abdomen was markedly distended with ascites, and reddish striae were present; many well-healed needle scars were seen on the left side where pneumoperitoneum had been done. The blood pressure was 100/80 mm. Hg.

Laboratory Findings.—The urine had a specific gravity of 1.025, 2+ albumin, and contained both red and white blood cells. The red blood cell count was 4,500,000 per cubic millimeter, hemoglobin level 12.3 gm. per 100 cc., and hematocrit 35%. The white blood cell count was 15,000 per cubic millimeter, with 70% neutrophils, 27% lymphocytes, 2% eosinophils, and 1% monocytes. Blood urea nitrogen was 4 mg. per 100 cc., total protein 2.9 gm. per 100 cc., albumin 0.9 gm. per 100 cc., and globulin 2 gm. per 100 cc. The sputum contained Myco. tuberculosis, and the chest roentgenogram showed extensive bilateral apical infiltrations, with multilocular cavitation on the left side. A Thorn test with corticotropin was normal.

Course.—Shortly after the patient was admitted, edema of the feet and scrotum developed. He was given a low-sodium diet and hydrogen-ion exchange resins, but there was no improvement. The abdomen showed progressive enlargement and tension. The striae became wide and measured up to 40 mm. in width. A paracentesis done on Dec. 13, 1951, in the lower left quadrant yielded 7,000 cc. of a greenish, opalescent fluid. Because he showed the nephrotic syndrome, 40 mg. of corticotropin was given daily. After 26 days no beneficial effect was noted. On Jan. 8, 1952, corticotropin therapy was discontinued, and 12.5 mg. of cortisone was given daily. On Dec. 31, 1951, another aspiration had yielded 7,500 cc. of fluid.

At this time the brown pigmentation of the abdominal skin increased, and the striae became more numerous and wider, some measuring 60 mm. in width. The edges had a purple cast, and the central portions resembled fine, white tissue paper. A necrotic area developed over the coccyx, and several other pressure areas became reddened and thickened. On Jan. 21, 1952, a small, 4 mm., irregular longitudinal tear occurred in the center of a wide stria in the lower right quadrant of the abdomen. Ascitic fluid drained through the ostium, and it was necessary to keep the draining area heavily padded. The patient died on Jan. 28, 1952.

Autopsy Findings.—The body was that of an adult, emaciated, white man with an increase of brownish pigment over the entire body and edema of the feet and ankles. The skin over the abdomen had numerous wide striae measuring 60 mm. in width on the right side of the abdomen. There was a denuded area 20 mm. in diameter covered with gray exudate and containing a central 4 mm. sinus opening that led into the peritoneal cavity. The anterior abdominal wall was edematous, and the muscles were very thin. The abdominal cavity contained 6 liters of yellow fluid, and visceral and parietal layers of peritoneum had whitish, dull, thickened patches.

Large apical cavities and numerous, scattered caseous foci were found in both lung fields. The heart weighed 245 gm. and was essentially normal; the coronary vessels were elastic and had no plaques. There were only a few small plaques in the aorta. The liver weighed 1,100 gm. and was otherwise normal. The spleen weighed 230 gm., was firm, and gave a positive iodine-sulfuric acid test for amyloid. The gallbladder and pancreas were normal. The right and left adrenal glands were enlarged and weighed 11 gm. and 10.4 gm. respectively; the zones were distinct. There were numerous small ulcerations in the terminal ileum, the cecum, and the ascending colon. The right kidney weighed 220 gm. and was located normally. The left kidney weighed the same but was located below the bifurcation of the abdominal aorta at the level of the fourth lumbar vertebra. The kidney was rotated so that the ureter faced anteriorly. On section, both kidneys had a widened cortex with punctate yellow foci and gave a positive amyloid test. No abnormalities were found in the urinary bladder, testes, prostate, thyroid, brain, or pituitary gland.

Microscopic examination revealed many caseous areas with cavitation in the lungs but only a few giant cells; the pulmonary artery had slight medial calcification. Caseation was present in the mediastinal lymph nodes. The intestinal ulcers contained caseation without giant cells. The liver contained numerous minute tubercles and a small amount of amyloid subintimally in the vessels. There were heavy amyloid and brown pigmented deposits in the spleen. The kidneys had intercapillary amyloid deposits in nearly all the glomerules; vacuolar changes had occurred in the proximal tubules, which stained poorly. The distal tubules were dilated, and amyloid deposits were present between them. The adrenal glands contained diffuse amyloid throughout, especially in the cortex, but least in the zona glomerulosa. The brain was slightly edematous. The pituitary and thyroid glands were normal. There was intracellular and extracellular brown pigment in the bone marrow.

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The chief pathological diagnoses were: (1) pulmonary tuberculosis with caseation and cavitation; (2) tuberculous ulcerative enterocolitis; (3) amyloid disease of the kidneys, adrenals, and spleen; (4) nephrosis due to amyloidosis; (5) anomalous location of left kidney; (6) ascites; and (7) abdominal striae distensae with sinus tract formation in the lower right quadrant.

COMMENT

A review of the literature reveals that stria formation is more complex than is ordinarily supposed, and much remains to be discovered of its etiology and pathogenesis. Striae have been described in a large variety of conditions: (1) pregnancy; (2) distention caused by ascites, large abdominal tumors, rapid gain of weight, rapid increase in growth; (3) infections such as typhoid, typhus, leprosy, syphilis, and meningitis, especially in children and adolescents; (4) endocrine disorders in puberty, Cushing's syndrome, and pituitary and adrenal tumors; and (5) miscellaneous conditions, such as spondylitis deformans and certain nervous system diseases.

Striae occur perpendicularly to the lines of maximal tension. On the abdomen they cut across Langer's lines; on a limb they are transverse during longitudinal growth, and are longitudinal if the growth is chiefly circumferential. Pathologically, striae show rupture and retraction of the fibroelastic bundles of the corium, thus revealing the underlying vascular plexuses and producing a purplish color; in the later stages, the vessels are atrophied, and the striae appear white and silvery.

The pathogenesis of stria formation is not clear.[1] Since distention is present in practically all cases, it is believed that stretching of the skin is the primary cause, but apparently constitutional, hormonal, toxic, nutritional, and neurotrophic factors are also important. The degree of stria development in pregnancy varies with respect to race and individual body structure.[2] They also occur in conditions with little skin tension and are relatively rare in ascites and large abdominal tumors. Striae are also seen in nonpregnant women.[3] They commonly occur in adolescence, are consistently present in Cushing's syndrome, and develop in many infections. These secondary factors apparently further weaken the elastic and collagenous fibers of the skin and make them more vulnerable to damage by the pressure of distention.

Corticotropin and cortisone probably play an important role in stria formation occurring in Cushing's syndrome, and they (or similar hormones) are also important in stria formation due to pregnancy, constitutional structure, and perhaps infections. Alrich, Carter, and Lehman [4] have shown that cortisone retards wound healing by decreasing the production of collagen and delaying the proliferation of fibroblasts, which results in a wound closure of low tensile strength. The fact that we were unable to find a similar case of abdominal rupture through a stria and that this patient received both corticotropin and cortisone suggests that the hormones further damage an already weakened abdominal wall, with resultant rupture through the weakened area. Corticotropin and cortisone should probably be used with caution in cases of abdominal distention with stria formation.

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SUMMARY

This is the first report of a rupture of the abdominal wall through a stria cutis distensa. The factors influencing stria formation are discussed with special reference to corticotropin and cortisone.

MUMPS SKIN TEST DURING A MUMPS EPIDEMIC

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In their work "Immunity in Mumps" Enders and his associates [1] reported that persons having previously contacted mumps virus in the subclinical or clinical forms exhibited dermal hypersensitivity on intradermal inoculation of small amounts of heat-inactivated virus. These authors have found that, on the whole, this phenomenon correlated satisfactorily with a state of resistance against infection by mumps virus. They also proposed the following criteria for the interpretation of the skin reaction: an erythema of 10 mm. mean diameter or less should be considered to be a negative response; an erythema between 11 and 15 mm. in diameter should be considered a doubtful response; and an erythema over 15 mm. mean diameter should be regarded a positive reaction indicative of the resistant state. They used skin test antigens prepared from infected monkey parotid gland or from infected amniotic sacs with equally good results. Habel [2] confirmed the observations of Enders and co-workers and obtained slightly better results with chick embryo than with monkey parotid gland skin test antigens. Florman [3] used an egg-grown virus killed by formaldehyde (Formalin) and partially purified by centrifugation in study of the epidemiology of mumps in household groups such as seen in private pediatric practice in New York City. They also obtained evidence that a positive skin

Major Julia F. Gawarecki, Army Nurse Corps, assisted in this study, and Mrs. A. K. Lamb assisted in the preparation of the manuscript.

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test was related to a resistant state and that a positive reaction developed several months after onset of the disease. They arrived at the conclusion that the test is useful in practice to determine susceptibility to mumps. Muntz and others [4] prepared a skin test antigen from killed egg-propagated virus and demonstrated that a hypersensitive reaction appeared in persons who had had previous contact with mumps virus.

We present here the results obtained by skin testing of persons involved in a small mumps epidemic at West Point, N. Y. Although the number of patients tested is limited, it does present enough variety to show the different situations that may be encountered by a clinician during a mumps epidemic.

TABLE 1.—*Clinical Cases of Mumps During Epidemic*

Case	Sex	Age, Yr.	Mumps History	Mumps During Epidemic; Date of Onset	Date of Skin Test	Skin Test Readings, Mm. Mumps	Skin Test Readings, Mm. Control	Remarks
1	M	28	None	2/26/49	2/27/49	10.0	0	Showed a marked increase of skin hypersensitivity three to four months after mumps onset.
					6/ 2/49	20.0	1.0	
2	F	2½	None	2/19/49	2/11/49	0	0	Brother and sister; at time of skin test, another brother had active mumps; skin test disclosed that both of these were susceptible to infection; both came down with mumps a few days later. These patients were unavailable for retesting.
3	M	4	None	2/20/49	2/11/49	0	0	
5	M	6	None	2/ 9/49	2/21/49	11.5	0	First tested 12 days after onset of mumps; gave a reaction considered as doubtful according to Enders' classification. Skin reaction was positive eight months after onset.
					10/ 1/49	15.0	0	
6	M	2½	None	2/26/49	2/28/49	1.5	1.5	Reaction to skin test was negative at time of onset; definite increase of skin sensitivity four and seven months after onset.
					7/ 2/49	12.0	0	
					10/ 3/49	10.0	1.0	
11	M	9½	None	4/26/49	6/30/49	13.5	10.0	Two brothers and a sister were not tested prior to onset of mumps. On 4/26/49, patient in case 11 had slight induration behind right mandible and pain when he chewed. Induration persisted, with no increase, for five days. Sixteen days later, sister (case 12) had fullblown mumps, and two days later brother (case 13) had mumps. Doubtful skin reactions were obtained on patients in cases 11 and 12 two and a half months after onset. Patient in case 13 gave weak reaction. Patients were unavailable for retesting.
12	F	3½	None	5/12/49	6/30/49	11.0	1.0	
13	M	7	None	5/14/49	6/30/49	8.2	0	
16	M	20	None	7/16/49	7/16/49	2.0	0	Skin test negative at time of onset; patient showed increased skin hypersensitivity two months later, but reading still low.
					7/31/49	2.0	0	
					9/21/49	10.0	0	
17	M	19	None	7/ 9/49	7/ 9/49	0	0	Skin test negative at time of onset. No skin sensitivity had developed two months later.
					7/21/49	2.0	4.0	
					8/18/49	4.0	4.0	
18	M	21	None	6/28/49	6/28/49	0	0	Patient in case 20 did not have parotitis but had bilateral orchitis and epididymitis with low blood cell count and normal differential. Roommate (case 19) was admitted to hospital on same day, with typical mumps parotitis. Both had been exposed about two and a half weeks previously to patient in case 18. All three presented increased skin sensitivity after onset of illness.
					7/ 5/49	0	0	
					7/18/49	10.0	0	
					9/19/49	11.0	0	
19	M	21	None	7/15/49	7/17/49	0	0	
					7/30/49	0	0	
					9/20/49	8.0	0	
20	M	23	None	Admitted to hospital on 7/15/49 with bilateral orchitis and epididymitis	7/17/49	0	0	
					7/30/49	2.0	0	
					9/17/49	16.0	0	

MATERIALS AND METHODS

Mumps Virus.—The strain of mumps virus used for the preparation of the skin test antigen was supplied to us by Dr. Karl Habel of the National Institutes of Health. It was propagated in our laboratory in 8-day-old embryos, and infected allantoic fluid was harvested after seven days incubation at 35 C. Normal allantoic fluid was obtained from 8-day-old eggs inoculated with sterile broth and treated in the same manner as infected eggs.

Preparation of Mumps and Control Antigens.—These antigens were prepared from infected and normal allantoic fluids, respectively. We used essentially the same procedure as that described by Enders [5]; one part of allantoic fluid was added to two parts of saline. The pH of the mixture was between 6.8 and 6.9. It was heated for 20 minutes at 65 C and centrifuged at 3,500 rpm for 30 minutes. The final concentration of the allantoic fluid was brought to 1:10 by the addition of saline containing enough phenol to give a final concentration of 0.5% of the preservative. The two antigens were then distributed in vials containing 5 cc. amounts and were tested for purity and safety.

Skin Testing.—Each person tested received intradermally, on the anterior surface of the forearm, 0.1 cc. each of the mumps and control antigens. Injections were made on the same forearm 5 to 6 cm. apart in order to avoid overlapping of reactions. Reading of largest and smallest diameters of erythema were made 24 and 48 hours after injection, and the average diameter was calculated on that basis.

RESULTS

Twenty-three persons were involved in this mumps epidemic, which extended over a period of five months. Ages ranged from 2½ to 38 years. There were 16 males and 7 females. Clinical mumps developed in 13 persons during the course of the epidemic; the other 10 were either persons who contacted others with mumps or persons who presented indurations or swellings in the postmandibular or preauricular regions that were later found to be caused by conditions other than mumps. For the sake of convenience the descriptions of all cases, as well as the results of the skin tests, have been tabulated under these different headings: (1) clinical cases of mumps during epidemic (table 1); (2) patients presenting indurations and swellings not caused by mumps

4. Muntz, H. H.; Powell, H. M., and Culbertson, C. G.: Mumps Vaccine: 1. Studies on Human Volunteers, J. Lab. & Clin. Med. **34**: 199-208, 1949.

5. Enders, J. F., and Levens, J. H.: Mumps, in Diagnostic Procedures for Virus and Rickettsial Diseases, New York, American Public Health Association, 1948, pp. 160-161.

(table 2); and (3) persons with negative or positive skin test who contacted others with mumps in whom mumps did not develop (table 3).

COMMENT

There are three situations in which the clinician can secure aid from skin testing in clinical cases of apparent mumps or in persons exposed to patients with mumps. First, and probably of greatest value, is the positive skin test in a person whose clinical manifestations closely resemble mumps. As is well known to anyone with experience in general practice, pediatrics, or internal medicine, the early manifestations of mumps and the infrequent cases of mumps with mild parotid involvement do not permit easy diagnosis; therefore, when a patient with an induration behind the ramus of the mandible suggestive of mumps is skin tested, he can be released from isolation within 24 or 48 hours if the skin test is strongly positive and, thus, indicates immunity to mumps. Examples of such instances are cases 7, 21, and 23 in table 2. Although the patients in cases 7 and 23 had histories of mumps, the positive skin tests were of great help in excluding the possibility of a second infection. In case 21, on the other hand, there was no history of mumps, and, so, the positive skin test was of especially great diagnostic weight. A further diagnostic problem is presented by patients who have an obvious acute parotitis that may be caused by conditions other than mumps. Before the availability of skin testing, one of us (R. J. H.) encountered several such patients. The differential diagnosis, once calculus of Stenson's duct was excluded, was dependent on history, duration of the parotitis, and the blood cell count. If there was no leukocytosis and if a history of mumps was absent or unreliable, it would probably have been clinically impossible to make, or to disprove, a diagnosis of mumps without a skin test.

A second advantage to the clinician is the possibility of making a diagnosis of nonparotid mumps. This is illustrated by the patient in case 20; there was a change from a negative to a positive skin test over a period of time in a patient who never had parotitis but who did have mumps involvement of another organ. This is of more than academic interest because social problems involving venereal disease are eliminated; and, furthermore, the patient can consider himself immune to mumps on subsequent occasions when knowledge of such immunity will allow latitude of activity.

TABLE 2.—*Patients with Indurations and Swellings Not Caused by Mumps*

Case	Sex	Age, Yr.	Mumps History	Date of Skin Test	Skin Test Reading, Mm.		Remarks
					Mumps	Control	
7	M	21	Mumps in 1940	3/ 7/49	18.0	2.0	Induration behind the ramus of mandible did not progress like mumps. Follow-up definitely confirmed that it was not mumps. Skin test was useful in excluding mumps.
10	M	21	None	4/ 2/49	9.5	2.0	Enlarged submental lymph node developed; skin test suggested that patient might be susceptible to mumps, but the course of illness showed that it was not mumps. This patient was unavailable for retesting.
21	F	38	None	7/19/49	20.0	1.0	Skin test disclosed that patient was resistant to mumps. She had, however, a swelling behind the left mandible that lasted only two days. Clinically not mumps, leukocytosis.
22	M	21	Mumps in 1937	10/31/49	21.0	1	Gave an immune reaction, but showed an indefinite induration behind ramus of right mandible not clinically suggestive of mumps.
23	M	22	Mumps in 1942	11/17/49	12.0	0	Appeared with acute, painful, tender swelling of right submaxillary gland; opening of Stenson's duct red and swollen; blood cell count normal. Size of swelling fluctuated slightly between meals, and gritty material was expelled from duct. Diagnosis: calculus of Stenson's duct.

TABLE 3.—*Persons Exposed to Mumps in Whom Mumps Did Not Develop*

Skin Test Reaction	Case	Sex	Age, Yr.	Mumps History	Date of Skin Test	Skin Test Reading, Mm.		Remarks
						Mumps	Control	
Negative	8	F	7	None	3/ 8/49	5.0	0	Mother and daughter lived in small trailer with another woman whose child had mumps. They were in the same trailer during first day of disease; neither contracted mumps. One might have assumed that they were immune to mumps inasmuch as they did not become sick. Skin test at time of onset, however, disclosed that both were susceptible, and later test seemed to indicate that they were merely fortunate in not making adequate contact with the virus. This exposure and failure to develop the disease, or immunity, is an interesting side-light on the contagiousness of mumps.
					6/18/49	3.0	0	
	9	F	30	None	3/ 8/49	4.5	9.0	
					6/18/49	4.0	4.0	
Positive	4	F	36	Mumps during childhood	2/11/49	20.0	0	Skin test disclosed that this woman was resistant to mumps. She was the mother of patients in cases 2 and 3; mumps did not develop despite repeated contact with the patients.
	14	M	37	Unknown	7/21/49	17.2	2	Parents of patients in cases 11, 12, and 13. To their knowledge, they had not had mumps. Skin test, however, disclosed them to be immune, and exposure to affected children did not result in clinical disease.
	15	F	37	Unknown	7/21/49	21.0	1	

A third advantage is that the clinician is aided because he can perform skin tests on exposed children who are not sick, and, if the results are strongly positive, he can freely tell the parents that they need not fear the occurrence of mumps. Any practicing physician knows that such assurance may make a great difference in plans for trips, vacations, and other activities. In military service, for example, a positive skin test might make the difference in whether or not a person would be allowed to board an Army transport.

SUMMARY

A positive skin test with mumps antigen, like a positive tuberculin skin test, indicates past invasion of the body by the causative agent; however, unlike the tuberculin test, a positive mumps skin test indicates a state of resistance to mumps and, consequently, immunity to infection.

Skin testing is a simple method of determining susceptibility or resistance to mumps and allows the clinician to infer (1) that an acute disease physically resembling mumps parotitis is actually mumps if a negative skin test is obtained but is not if the result is positive; (2) that an acute disease without associated parotitis, such as acute epididymo-orchitis or acute meningitis, was caused by mumps virus if the skin test was initially negative but became positive two or three months later; (3) that persons recently exposed to mumps but shown to have positive skin tests will not contract the infection; and (4) that persons recently exposed but who show negative skin tests should be considered susceptible to mumps, and no prediction can be made as to whether they will have mumps.

INFECTIOUS MONONUCLEOSIS ASSOCIATED WITH SYMPTOMS OF ACUTE PERICARDITIS

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and
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Both infectious mononucleosis and acute benign, or so-called nonspecific, idiopathic, or primary, pericarditis are disorders of unknown cause that tend to occur commonly in young persons and are often preceded by symptoms suggestive of a mild infection of the upper respiratory tract.[1] The pathological changes in infectious mononucleosis are widespread, and the clinical picture is highly variable, depending on the intensity of the localization of the pathological changes that produce symptoms and signs. The pathological changes in acute benign pericarditis are confined to the pericardium and possibly to the adjacent tissues, so that the clinical picture is fairly constant, except for variability in intensity of symptoms and signs. The diagnosis of infectious mononucleosis can, however, be firmly established by specific laboratory studies, whereas acute benign pericarditis remains a clinical concept and is an admission by the clinician of his inability to uncover a specific cause. Perhaps the increase in viral diagnostic laboratory facilities will help in the classification of this clinical entity according to specific causes. Meanwhile, it is important that every effort be made to exclude systemic or adjacent organ disease, among other known causes of pericarditis,[2] before a diagnosis of acute benign pericarditis is made. Our purpose is to report a rare instance of a patient who had the clinical picture of acute benign pericarditis that was proved to be due to infectious mononucleosis.

REPORT OF A CASE

The patient was referred by Dr. Philip Clair to one of us (L. A. S.) and was first seen on Nov. 12, 1952. He had severe, agonizing pain located primarily substernally and radiating across the anterior chest wall upward toward both shoulders and downward to the epigastric region. His family physician had made a diagnosis of acute benign pericarditis but wanted to exclude the possibility of myocardial infarction because of the severity of the pain and its duration and recurrence.

The patient was a white boy, 17 years old, who had regarded himself to be in good health, until Nov. 11, 1952, when he awoke feeling unwell. He had no specific complaints, however, and went to his place of work, where he is a cashier outside school hours. Later in the same day, he felt feverish and had vague pains across the anterior chest wall, which radiated toward both shoulders. He applied an ointment to these regions for relief. That evening, the pain became agonizing and the family physician was called. The physician found it necessary to give him morphine sulfate for relief of pain, after which he fell asleep. He was awakened at 2 a.m. by similar pain across the anterior chest wall, which radiated to the epigastrium and was accompanied by nausea. Again, an injection of morphine sulfate had to be given for relief of pain, and the patient fell asleep. On the following morning, he awoke with a recurrence of pain, nausea, and a sensation of chilliness.

Physical examination on Nov. 12 revealed a normally developed, normally nourished young man who complained of pain in the chest. He felt slightly short of breath. Deep breathing and change of position increased the intensity of the pain. Except for slight tachycardia, the heart seemed normal on physical examination. An electrocardiogram confirmed Dr. Clair's diagnosis of acute pericarditis. General physical examination revealed, however, small lymph nodes in the cervical, axillary, and inguinal regions. Although the presence of these lymph nodes in the cervical and inguinal regions did not necessarily signify active disease, it was thought that the axillary lymph nodes were larger than would be expected normally. For this reason, the possibility of a lymphomatous disorder, with secondary pericardial involvement, was considered.

The patient was admitted to Temple University Hospital Nov. 15, 1952, for study. In the hospital, the results of physical examination were unchanged, except for the occasional occurrence of premature beats and accentuation of the pulmonic second sound. Fluoroscopic and roentgenographic study of the chest revealed a normal cardiac silhouette, normal lung fields, and normal excursion of the diaphragm. An electrocardiogram made Nov. 17 showed the pattern of subsiding pericarditis. The venous pressure was 150 mm. H_2O, the dehydrocholic acid (Decholin) time was 14 seconds, and the ether time was 6 seconds. The hemoglobin level was 15 gm. per 100 cc., the hematocrit 46%, the leukocyte count 13,700 per cubic millimeter, and the erythrocyte sedimentation rate 11 mm. in 1 hour (Wintrobe, corrected). A blood smear showed 29% neutrophils, 53% lymphocytes, 5% atypical lymphocytes, 1% prolymphocytes, 8% monocytes, and 4% disintegrated cells. Serologic tests for syphilis gave negative results. The heterophil antibody titer was 1:1792 on Nov. 19 and 1:896 on Nov. 21. Results of urinalysis were normal. On Nov. 20, examination of the blood revealed 12,300 leukocytes per cubic millimeter, with 22% neutrophils, 55% lymphocytes, 11% atypical lymphocytes, 1% prolymphocytes, 4% monocytes, 1% basophils, and 6% disintegrated cells. An electrocardiogram made Nov. 20 showed an upper nodal rhythm. The P vector was directed −90 degrees anteriorly. The P-R interval was 0.1 second.

For the first three days of hospitalization, the patient's temperature was elevated variably to as high as 101.8 F, but by the fourth day it had returned to normal. The patient received oxytetracycline, 500 mg. every 6 hours. The symptoms disappeared shortly after hospitalization, and the patient was discharged Nov. 21, 1952.

On Nov. 26, results of blood studies were as follows: hemoglobin level, 15 gm. per 100 cc.; erythrocyte count, 5,400,000 per cubic millimeter; leukocyte count, 9,000 per cubic millimeter, with 32% neutrophils, 59% lymphocytes (many abnormal), 7% monocytes, and 2% basophils, and heterophil

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Because of space limitations, the bibliographic references have been omitted from THE JOURNAL and will appear in the authors' reprints.

antibody titer, 1:224. Repeated electrocardiograms showed normal sinus rhythm and sequential changes in the ST-T portion of the electrocardiogram consistent with a subsiding pericarditis. The last electrocardiogram, made April 6, 1953, showed a normal sinus rhythm and a decreased voltage of the T waves. At present, results of laboratory studies are negative, and the patient is well and is attending school and working after school.

COMMENT

If the lymphadenopathy had not been discovered, this young man would have been regarded as having had acute nonspecific or idiopathic pericarditis. It is possible for the diagnosis of infectious mononucleosis to be missed also because the leukocyte count in the early stages of the illness is not characteristic and because there is no significant rise in sheep cell agglutinin titers until long after the onset of the disease.[3]

Cardiac involvement in infectious mononucleosis is usually found accidentally during a routine electrocardiographic examination. The literature has been reviewed recently by Leibowitz.[4] Some workers have reported electrocardiographic abnormalities in as many as 41% of persons with infectious mononucleosis.[5] Most commonly, the abnormalities consist in minor changes in the amplitude of the T waves, as may be seen in any infection. The occurrence of premature beats, prolongation of the P-R interval, and even second degree heart block have been reported as well as alterations in the ST-T portion of the electrocardiogram.[6] In almost all instances, clinical symptoms due to cardiac involvement are absent. Occasionally, the occurrence of a systolic murmur, which is in no way different from the systolic murmur frequently found in febrile illnesses, has been reported.[7] A case has been reported of mitral stenosis following infectious mononucleosis, but the relation may be purely temporal rather than causal.[8] In the few reports of necropsies that are available, the presence of lymphocytic and monocytic cellular infiltration of the myocardium is mentioned.[9]

Pericardial involvement in infectious mononucleosis, recognized clinically or electrocardiographically, is rare. Only four instances have been reported, and two have been mentioned incidentally in the literature.[10] All the patients had either ST segment or T wave changes or both. Two had a friction rub, and two had pericardial effusion. Our patient had both clinical and electrocardiographic evidence of acute pericarditis and, also, transient upper nodal rhythm. Serial electrocardiographic tracings in our patient show the typical sequential changes of acute pericarditis. The last tracing, taken four and one-half months after the onset of illness, is still not entirely normal. Clinically, the patient is well.

SUMMARY AND CONCLUSIONS

1. A case of infectious mononucleosis is reported in which the first symptoms were those of acute pericarditis.

2. The diagnosis of acute, benign, nonspecific or idiopathic pericarditis should be made only when all known causes of acute pericarditis have been excluded by a carefully taken history, a thorough physical examination, and pertinent laboratory tests.

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EXTREME HYPERGLYCEMIA AND SEVERE KETOSIS WITH SPONTANEOUS REMISSION OF DIABETES MELLITUS

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From time to time extreme hyperglycemia has been recorded. We wish to report on a patient who had an unusually high blood sugar but, after surviving profound and prolonged coma, apparently recovered completely from all symptoms and signs of diabetes mellitus.

REPORT OF A CASE

A 68-year-old Negro woman was admitted to the Cook County Hospital, Chicago, on July 3, 1952, in a coma. She had been well until three months previously, when she began to note unusual thirst and weakness. On the day before admission the patient had felt generally and indefinitely ill. She went to bed early that night, thinking that she might have a cold, and was found unconscious in bed the next morning. Her history previous to the three months before admission was irrelevant, and there was no known diabetes in her family.

On admission the patient appeared to have extreme ketosis. Kussmaul's breathing with an acetone odor was present. The skin was dry and florid, and the eyeballs were soft. The rectal temperature was 98.2 F. Other than generalized hyporeflexia, unconsciousness, absence of a pupillary reaction to light, and elicitation of Babinski signs, there were no abnormal neurological signs and, in particular, no focal signs of a neurological lesion. The blood pressure was 110/80 mm. Hg, and the pulse rate was 108 per minute. The leukocyte count was 14,300 per cubic millimeter. Chemical analysis of the blood revealed 1,170 mg. of sugar per 100 cc., carbon dioxide combining power 10 vol. %, nonprotein nitrogen 76 mg. per 100 cc., creatinine 5 mg. per 100 cc., sodium 141 mEq. per liter, chloride 98 mEq. per liter, and potassium 5.6 mEq. per liter. Urinalysis showed 4+ sugar and 4+ acetone. The spinal fluid was under slightly increased pressure but otherwise was normal.

The patient was given 100 units of regular insulin intravenously and 100 units subcutaneously, on admission; in addition, 850 cc. of isotonic sodium chloride solution and 150 cc. of one-sixth molar sodium lactate solution were administered simultaneously. Three hundred thousand units of procaine penicillin and 1 gm. per day of streptomycin were injected to prevent respiratory infection. Therapy during the first 24 hours is shown in the table.

Altogether, 1,425 units of regular insulin and 10,350 cc. of fluids were given within the first 24 hours of coma. The chemical and physical signs of ketosis disappeared in 24 hours, but the patient remained in a coma for five days. She received 2,000 cc. of 5% glucose in isotonic sodium chloride solution, 1,000 cc. of isotonic sodium chloride solution, 150 cc. of one-sixth molar sodium lactate solution and 4 gm. of potassium chloride daily parenterally.

The patient was fully conscious on the sixth hospital day and showed no neurological symptoms or signs. A liquid diet consisting of 300 cc. of milk every 6 hours alternately with 240 cc. of orange juice every 6 hours was given to the patient every 3 hours. On the eighth day she was given a diet yielding 120 gm. of carbohydrate, 60 gm. of protein, and 70 gm. of fat. After the first 24 hours on this regimen, the insulin dose was lowered progressively from 250 units per day to 175 units, 150 units, 100 units, 80 units, 50 units, 40 units, and 10 units per day, during a period of one week. A daily dose of 10 units of regular insulin was continued for one month, after which 5 units were given daily for a few more days. Finally no insulin was given at all. After the first 24 hours on the diet the patient had no glycosuria or hypoglycemia.

Fasting blood sugar determinations (milligrams per 100 cc.) during her hospital stay were as follows:

July 5	550
7	332
8	365
14	80
18	135

She was discharged on Aug. 21, 1952, with glycosuria and hyperglycemia controlled on a regimen of 150 gm. of carbohydrate, 80 gm. of protein, and 80 gm. of fat daily.

The patient was readmitted in November for further metabolic studies. During her second hospitalization she showed no glycosuria. Her fasting blood sugar level ranged between 100 and 110 mg. per 100 cc. of blood. An insulin tolerance test was performed with the use of 7 units of regular insulin (calculated on the basis of 0.1 unit per kilogram of body weight). The fasting blood sugar of 107 mg. per 100 cc. was reduced to 60 mg. per 100 cc. in 25 minutes by intravenous injection of 7 units of regular insulin, returning to 85 mg. per 100 cc. at the end of two hours. In a glucose tolerance test, the fasting blood sugar level of 100 mg. per 100 cc. rose to 124 mg. per 100 cc. one-half hour after the ingestion of 75 gm. of dextrose. One hour later it was 200 mg. per 100 cc. In two hours it was 158 mg. per 100 cc.; three hours after administration of the glucose it was 67 mg. per 100 cc. The patient was given a diet yielding 340 gm. of carbohydrate, 90 gm. of protein, and 100 gm. of fat for two days. There was an excretion of 0.75 gm. of glucose in the 1,230 cc. of urine representing a 24 hour excretion. A blood sample taken two hours after the breakfast while the patient was on the diet showed the blood sugar to be 110 mg. per 100 cc. Other endocrine tests revealed a normal Robinson, Power, and Kepler test for Addison's disease; excretion of 6.3 and 6.5 mg. of 17-ketosteroids per 24 hours on two successive days; basal metabolic rate −8%; and I^{131} uptake of 14%. From the standpoint of renal function, the urinalysis showed no abnormalities. The nonprotein nitrogen was 26 to 30 mg. per 100 cc. Phenolsulfonphthalein excretion was 65% within two hours after intravenous injection of the dye. The pyelogram was normal. Liver function tests yielded a negative cephalin cholesterol flocculation test and a thymol turbidity of 6 units per 100 cc. Serum cholesterol was 238 mg. per 100 cc., and total protein 7.8 gm. per 100 cc., with a normal albumin to globulin ratio. Serum amylase was 8 units per 100 cc. The gastrointestinal tract and skull were roentgenologically normal.

Therapy and Condition of Patient in First Twenty-Four Hours

Time	Urine: Sugar	Urine: Acetone	Blood Sugar (Mg. per 100 Cc.)	Fluids and Electrolytes	Insulin (Regular, in Units)	Condition
July 3						
12:00 a.m.	4+	4+	1,170	850 cc. saline	100 intravenously	Comatose
				150 cc. M/6 lactate *	100 subcutaneously	
1:00 p.m.	4+	4+	...	700 cc. saline	150 intravenously	Comatose
				300 cc. saline	150 subcutaneously	
				4 gm. potassium chloride		
2:30 p.m.	4+	4+	885	1,000 cc. 5% G/S †		
4:00 p.m.	4+	4+	...	500 cc. 5% G/S		
				150 cc. M/6 lactate		
4:30 p.m.	4+	4+	...	800 cc. saline	100 intravenously	Comatose
					100 subcutaneously	
5:30 p.m.	4+	4+	...	.....	100 intravenously	
					100 subcutaneously	
7:30 p.m.	4+	4+	...	100 cc. M/6 lactate	100 intravenously	
					100 subcutaneously	
9:30 p.m.	2+	2+	...	1,000 cc. 5% G/S	.....	Comatose
11:30 p.m.	1+	1+	...	1,000 cc. 5% G/S	.....	Comatose
				2 gm. potassium chloride		
July 4						
1:30 a.m.	2+	0	...	1,000 cc. 5% G/S	.....	Restless
3:30 a.m.	2+	0	...	.....	50 intravenously	Restless
					100 subcutaneously	
5:00 a.m.	4+	0	...	1,000 cc. 5% G/S	50 intravenously	Restless
					50 subcutaneously	
8:30 a.m.	3+	0	...	800 cc. 5% G/S	50 subcutaneously	Restless
				2 gm. potassium chloride		
11:30 a.m.	Trace	0	...	1,000 cc. 5% G/S	25 subcutaneously	Restless
				2 gm. potassium chloride		

* One-sixth molar sodium lactate solution.
† Glucose in isotonic sodium chloride solution.

COMMENT

An extraordinarily elevated blood sugar level is usually associated with severe diabetic symptoms. While serious, it cannot be taken as a necessarily bad omen. Joslin [1] reported 38 cases of diabetic coma that had blood sugar levels of 1,000 mg. per 100 cc. or higher, the highest being 1,620 mg. per 100 cc.; 29 recovered from coma, and 9 died. Dillon and Dyer [2] reported on 25 patients from the Philadelphia General Hospital with blood sugar levels on admission of 1,000 mg. per 100 cc. or more; 9 recovered, and 16 died. The highest blood sugar they reported was 1,850 mg. per 100 cc. in a 21-year-old girl; she recovered from the coma. Brodribb [3] reported a blood sugar level of 2,000 mg. per 100 cc. in a 67-year-old woman who recovered from coma. The blood sugar in the patient of Meyer and Salt [4] was 2,100 mg. per 100 cc. after administration of 660 units of insulin and 320 gm. of glucose. The patient recovered from the ketosis. High blood sugar values in cases terminating fatally have been reported by others; in Lawrence's case, the blood sugar value was 2,060 mg. per 100 cc.; in Argy's, 1,710 mg. per 100 cc.; in Pitfield's, 1,700 mg. per 100 cc.; and in Olmsted's, 1,400 mg. per 100 cc.

The duration of unconsciousness before treatment is begun significantly affects the prognosis. According to Joslin,[1] in a patient unconscious 8 hours (12 hours according to others) the outlook is grave. In our case the duration of unconsciousness before treatment was estimated to be at least 10 hours. The patient did not regain full consciousness for five days. We used the arbitrary standards of Dillon and Dyer [5] for determination of unconsciousness and those of Rabinowitch, Fowler, and Bensley [6] in defining coma. Such a long period of unconsciousness almost always precludes recovery, according to Rabinowitch, Fowler, and Bensley [6] and to Owens and Rockwern.[7] The age of the patient also has an important

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bearing on the prognosis. Joslin [1] indicated the increased danger of coma with advanced age, the highest mortality occurring in the sixth decade. Our patient was 68 years old.

The patient's insulin requirements fell until finally she required none. Results of a glucose tolerance test three months after the acidosis were normal. She did not excrete more than 1 gm. of sugar in her urine in 24 hours, even on a high carbohydrate diet; she was clinically "cured" of her diabetes. She has been free of dietary restrictions for five months, enjoys pastries, ice cream, and other carbohydrate-rich foods with no resulting glycosuria or hyperglycemia, and remains in very good health. A possible future relapse, however, cannot be excluded.

Diabetes mellitus is ordinarily regarded as a permanent, constitutional defect. "Cure" (or recovery) in the sense that pneumonia or typhoid are cured is probably not applicable to diabetes mellitus. Variability, even marked, in the amount of glucose a patient can tolerate without excreting abnormal amounts of glucose in the urine (fluctuation in tolerance) is common in the course of most cases of diabetes.

According to Zubrod, Eversole, and Dana,[8] a remarkable reduction in insulin requirement is frequently found as Kimmelstiel-Wilson's syndrome progresses. Improvement in the symptoms and findings of diabetes mellitus has also been described as following limitation of diet and consequent loss of weight,[9] cirrhosis,[10] extirpation of pheochromocytoma,[11] radiation of the pituitary gland in acromegaly,[12] relief of Cushing's syndrome,[13] control of hyperthyroidism, a large intake of sodium chloride, McCarey's experiment, myxedema,[14] and senescence.[15] Patients have temporarily shown symptoms and signs of diabetes after brain injury, pancreatic disease, or hyperthyroidism. Maintenance of aglycosuria is often rewarded by a marked increase in the ability to tolerate much larger quantities of glucose-yielding food. None of these conditions account for the spontaneous disappearance of the symptoms and signs in our patient.

One of us (E. F. T.) observed a 10-year-old boy with severe, persistent, classic, uncomplicated diabetes mellitus requiring 60 units of insulin for its control who, without apparent cause, lost all the symptoms and signs of diabetes mellitus during an observation of one year. The spontaneous disappearance of the signs and symptoms of diabetes mellitus has been described before. John's first patient,[16] who had acromegaly and ultimately lost all symptoms and signs of diabetes, even to the development of a normal glucose tolerance curve, may be explained as manifesting the Houssay phenomenon [17] due to destruction of the pituitary gland by tumor. Kotte and Vonderahe [18] also described such a case.

SUMMARY

A 68-year-old woman showing extreme hyperglycemia with profound ketosis and prolonged coma recovered apparently completely from the signs and symptoms of diabetes mellitus. Her diabetes eventually went into spontaneous remission. We have been unable to find a record of a similar case.

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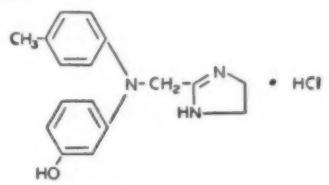
COUNCIL ON PHARMACY AND CHEMISTRY

Phentolamine Hydrochloride.—Regitine Hydrochloride (Ciba). —$C_{17}H_{19}N_3O.HCl$.—M.W. 317.81.—2-{ [N-(*m*-Hydroxyphenyl)-*p*-toluidino]methyl }-2-imidazoline hydrochloride.—The structural formula of phentolamine hydrochloride may be represented as follows:



Actions and Uses.—Phentolamine hydrochloride, a salt of phentolamine base, is suitable for oral administration and acts as a potent adrenergic blocking agent, producing adrenolytic and sympatholytic effects.

Experimentally, phentolamine blocks the peripheral effects associated with electrical stimulation of sympathetic nerves (sympatholytic action). In comparatively small amounts, it effectively reverses the hypertensive action of injected epinephrine and suppresses the pressor response to levarterenol (adrenolytic action). This antiadrenergic action constitutes the basis for the use of phentolamine salts in the diagnosis and control of hypertension caused by pheochromocytoma and in the treatment of certain vascular diseases in which blood flow to ischemic extremities can be increased by adrenergic blockade. In certain cases the drug has been shown to be beneficial in the treatment of the sequelae of frostbite and immersion foot and has produced favorable responses in other vasospastic conditions, including Raynaud's disease and vasospasm associated with trophic ulcers of the extremities. It has also proved valuable in some patients as an antihypertensive agent, particularly in the management of hypertensive emergencies or as an adjunct in the treatment of chronic arterial hypertension.

Because of its less ready solubility and the temporary stability of aqueous solutions of phentolamine salts, phentolamine hydrochloride (in contrast to phentolamine methanesulfonate) is not suited for parenteral injection, which is necessary in the diagnosis and surgical management of pheochromocytoma. However, phentolamine hydrochloride is useful by the oral

route for the control and prevention of blood pressure increases in patients with pheochromocytoma until surgical removal can be undertaken. For parenteral use and dosage of the drug, see the monograph on phentolamine methanesulfonate.

Phentolamine hydrochloride is relatively nontoxic, but oral administration of the drug may produce untoward side-effects, such as tachycardia, orthostatic hypotension, nasal stuffiness, and gastrointestinal disturbances such as nausea, vomiting, and diarrhea. Because of tachycardia, most patients do not tolerate the dosage required for sustained therapy of chronic hypertensive vascular disease. Withdrawal of medication is not always necessary, and, when it is employed in other conditions, a reduction in dosage is frequently followed by a disappearance of untoward symptoms.

Dosage.—Phentolamine hydrochloride is administered orally. The usual adult dose is 50 mg. four to six times daily. Larger doses, as high as 100 mg., four to six times daily, may be necessary, especially in severer cases of peripheral vascular disease and hypertension. In children, the usual dosage is 25 mg. four to six times daily.

Tests and Standards.—

Physical Properties: Phentolamine hydrochloride is a white or slightly off-white, odorless, bitter powder, m.p. 238-242° (with slight decomposition). It is very slightly soluble in chloroform, and practically insoluble in acetone and ethyl acetate. The amounts that dissolve in the following solvents to form 100 ml. of solution are: 0.85 gm. in alcohol and 2 gm. in water. Aqueous solutions of phentolamine hydrochloride are unstable. The pH of the 1% solution is 4.5-5.5.

Identity Tests: Dissolve about 50 mg. of phentolamine hydrochloride in 10 ml. of water, and add 2 drops of nitric acid and 1 ml. of silver nitrate T.S.: a white precipitate forms, which is insoluble in diluted nitric acid, but soluble in a large excess of diluted ammonia solution *(presence of chloride and distinction from phentolamine methanesulfonate).*

Phentolamine trichloroacetate obtained in the chemical assay for phentolamine hydrochloride melts at 136-141°.

A 0.001% solution, prepared as described in the spectrophotometric assay for phentolamine hydrochloride, exhibits an ultraviolet absorption minimum at about 255 mμ and a maximum at about 279 mμ [specific absorbancy, E(1%,1 cm.), about 252].

Purity Tests: Suspend 1 gm. of phentolamine hydrochloride in about 15 ml. of water, filter, and make up to 23 ml. with water poured through the filter. Add 2 ml. of diluted acetic acid and run a U.S.P. heavy metals test: the amount of heavy metals does not exceed 20 ppm.

Dissolve 0.1 gm. of phentolamine hydrochloride in enough water to make 25 ml. of solution, add 1 ml. of barium chloride T.S., shake, and allow the mixture to stand for 1 min.: the turbidity does not exceed that of 0.2 ml. of 0.02 *N* sulfuric acid diluted to 25 ml. and treated in the same manner *(presence of sulfate).*

Dry about 1 gm. of phentolamine hydrochloride, accurately weighed, at 60° in a vacuum for 4 hours: the loss in weight does not exceed 0.5%.

Char about 1 gm. of phentolamine hydrochloride, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.1%.

Assay: (Phentolamine Hydrochloride) Prepare a 0.001% solution of phentolamine hydrochloride as follows. Transfer to a 100 ml. volumetric flask 0.1 gm. of phentolamine hydrochloride, accurately weighed, fill to the mark with alcohol, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with alcohol, and mix. Transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with alcohol, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 279 mμ, using alcohol as a blank. The concentration of phentolamine hydrochloride in the solution in mg./ml. = absorbancy ÷ 25.2. The amount of phentolamine hydrochloride is not less than 95.0 nor more than 105.0%.

Transfer to a 100 ml. beaker about 0.1 gm. of phentolamine hydrochloride, accurately weighed. Dissolve the powder in 15 ml. of water. Add slowly, while stirring, 20 ml. of clear 10% trichloroacetic acid, and let the beaker stand for at least 1 hour. Suction filter the precipitate through a tared sintered glass crucible, removing any precipitate which adheres to the beaker with three 5 ml. portions of 10% trichloroacetic acid. Wash the precipitate with five 2 ml. portions of water, dry the precipitate in a vacuum over phosphorus pentoxide for 4 hours, and weigh. Each gram of phentolamine trichloroacetate formed is equivalent to 0.7146 gm. of phentolamine hydrochloride. The amount of phentolamine hydrochloride is not less than 98.0 nor more than 102.0%.

Dosage Forms of Phentolamine Hydrochloride

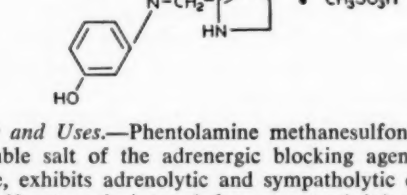
TABLETS. *Identity Tests:* Grind a number of tablets equivalent to about 0.4 gm. of phentolamine hydrochloride and triturate the powder with three 25 ml. portions of alcohol. Filter the alcohol extracts and evaporate the filtrate to dryness on a steam bath. The residue responds to the identity tests for the active ingredient in the monograph for phentolamine hydrochloride.

Assay: (Phentolamine Hydrochloride) Weigh 20 tablets and powder them. Transfer to a 100 ml. volumetric flask an amount of powder, accurately weighed, equivalent to about 0.1 gm. of phentolamine hydrochloride, add 50 ml. of alcohol, and shake the flask mechanically for 15 min. Fill to the mark with alcohol, mix, and centrifuge. Transfer to a second 100 ml. volumetric flask 10 ml. of the clear supernatant liquid, fill to the mark with alcohol, and mix. Transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with alcohol, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 279 mμ, using alcohol as a blank. The concentration of phentolamine hydrochloride in the solution in mg./ml. = absorbancy ÷ 25.2. The amount of phentolamine hydrochloride is not less than 93.0 nor more than 107.0% of the labeled amount.

Ciba Pharmaceutical Products. Inc., Summit, N. J.

Tablets Regitine Hydrochloride: 50 mg. U. S. patent 2,503,059.

Phentolamine Methanesulfonate.—Regitine Methanesulfonate (Ciba).—$C_{17}H_{19}N_3O.CH_4O_3S$.—M.W. 377.45.—2-{ [N-(*m*-Hydroxyphenyl)-*p*-toluidino]methyl }-2-imidazoline methanesulfonate.—The structural formula of phentolamine methanesulfonate may be represented as follows:



Actions and Uses.—Phentolamine methanesulfonate, readily water-soluble salt of the adrenergic blocking agent phentolamine base, exhibits adrenolytic and sympatholytic effects. The methanesulfonate salt is used for parenteral injection in the diagnosis and surgical management of hypertension caused by pheochromocytoma, a tumor that characteristically gives rise to excessive circulating epinephrine and/or levarterenol (*l*-norepinephrine). Phentolamine, as the hydrochloride salt, is administered orally to control blood pressure increases in patients with pheochromocytoma until surgical removal can be undertaken. For other uses and the dosage of the orally administered hydrochloride salt, see the monograph on phentolamine hydrochloride.

Phentolamine effectively blocks the pressor activity of epinephrine and levarterenol for longer periods than does piperoxan, and in smaller amounts. Therefore, phentolamine methanesulfonate is considered more useful and less toxic than piperoxan as a diagnostic agent to exclude the presence of pheochromocytoma as a cause of paroxysmal or persistent hypertension. On the other hand, piperoxan is less likely to cause a misleading drop in blood pressure in ordinary cases of hypertension. It should, therefore, be employed as a confirmatory test when interpretation of the results is in doubt.

The use of phentolamine methanesulfonate as a diagnostic test for pheochromocytoma is based on its adrenolytic effect in producing a fall in blood pressure during a "typical" paroxysmal hypertensive episode. However, it is also indicated diagnostically in the presence of persistent chronic hypertension, especially when the hypertension is associated with a high basal metabolic rate, hyperglycemia, and tachycardia, and in sudden severe hypertension in a normotensive or hypertensive patient during anesthesia or operative procedure, and in hypertension in children or young adults, especially in the absence of severe renal disease. During the normotensive phase, that is, when the pheochromocytoma is not discharging sufficient epinephrine or levarterenol to elevate the blood pressure or to sustain an elevation, and in essential hypertension coexisting with a pheochromocytoma, repeated testing may be necessary to rule out "false negative" interpretation of a slight fall in blood pressure following administration of phentolamine.

A "false positive" drop in pressure may occur in patients with uremia and in those who have received sedatives prior to the test with phentolamine. Therefore, the test should be performed in the absence of sedation (or any anodyne) for at least 24 hours preceding. Basal blood pressure is first determined following a period of rest in the supine position and the injection of the agent is delayed after introduction of the needle to allow the hypertensive effect of needle pain to subside.

The duration of the blood pressure response to phentolamine is influenced by the route of injection. Moderate or slight tachycardia is the only undesirable side-effect of the test so far associated with intramuscular injection of the recommended dose. Given intravenously, the same dose has caused tachycardia with angina and in rare instances, weakness, dizziness, or flushing, none of which have been considered serious. The diagnostic and therapeutic use of phentolamine methanesulfonate in pheochromocytoma is considered to be relatively safe and free from alarming reactions.

Dosage.—Phentolamine methanesulfonate is employed in permanently stable, lyophilized form for preparation of a fresh aqueous solution for administration by intramuscular or intravenous injection. In solution, phentolamine salts are stable for only about six months. For adults, the intramuscular or intravenous test dose is 5 mg. in 1 cc. of distilled water for injection; in children an intramuscular dose of 3 mg. or an intravenous dose of 1 mg. is usually adequate. A typical positive response is characterized by an immediate drop in systolic and diastolic blood pressure. The maximum depressor effect is usually obtained within 2 minutes after intravenous injection and within 20 minutes after intramuscular injection. Generally, the systolic fall is approximately 60 mm. Hg, with the diastolic fall exceeding 25 mm. Hg, but the degree of response may be somewhat less in some patients. After intramuscular injection, the reduction usually persists for some 30 minutes and gradually returns to previous levels within 3 to 4 hours. After intravenous administration, the blood pressure usually returns to previous levels within 10 to 15 minutes and occasionally within 2½ minutes. Negative responses are recorded when there is no change in blood pressure, a slight or moderate rise in blood pressure, or only a slight lowering of blood pressure. The intravenous route should be employed if it is necessary to repeat the test to rule out false reactions.

In the control of blood pressure during surgical management of pheochromocytoma, the preoperative adult dose is 5 mg., intramuscularly or intravenously, one to two hours before the operation. This is repeated, if necessary, to prevent a paroxysm caused by anesthesia or emotional stress. For children, the preoperative dose is 3 mg. intramuscularly or 1 mg. intravenously. During operation, an intravenous dose of 5 mg. for adults or 1 mg. for children, repeated if necessary, may be given whenever blood pressure begins to rise as a result of stress or of manipulation of the tumor.

Tests and Standards.—

Physical Properties: Phentolamine methanesulfonate is a white, odorless, bitter powder, m.p. 175-180°. It is freely soluble in water, very slightly soluble in acetone, and practically insoluble in ethyl acetate. The amounts that dissolve in the following solvents to form 100 ml. of solution are: 6.8 gm. in alcohol and 0.15 gm. in chloroform. Phentolamine methanesulfonate is stable when protected from moisture. The pH of the 1% solution is 4.5-5.5.

Identity Tests: Heat about 50 mg. of phentolamine methanesulfonate in a small test-tube with a pellet of sodium hydroxide until the mixture just melts. Cool, dissolve the melt in 2 drops of water, and add 2 drops of hydrochloric acid. Wash the walls of the test tube with 5 drops of water, wipe dry the rim of the tube, and lay over the mouth a strip of filter paper impregnated with nickelous hydroxide (dip paper in 30% nickelous chloride and then in 10% sodium hydroxide). Immerse the test tube in water at about 80°: the paper turns from light green to black or gray (*presence of sulfonic acid group and distinction from phentolamine hydrochloride*).

Phentolamine trichloroacetate obtained in the chemical assay for phentolamine methanesulfonate melts at 136-141°.

A 0.001% solution, prepared as described in the spectrophotometric assay for phentolamine methanesulfonate, exhibits an ultraviolet absorption minimum at about 256 mμ and a maximum at about 280 mμ [specific absorbancy, E(1%,1 cm.), about 212].

Purity Tests: Dissolve 1 gm. of phentolamine methanesulfonate in 23 ml. of water, add 2 ml. of diluted acetic acid, and run a U.S.P. heavy metals test: the amount of heavy metals does not exceed 20 ppm.

Dissolve 0.1 gm. of phentolamine methanesulfonate in enough water to make 25 ml. of solution, add 1 ml. of barium chloride T.S., shake, and allow the mixture to stand for 1 min.: the turbidity does not exceed that of 0.2 ml. of 0.02 *N* sulfuric acid diluted to 25 ml. and treated in the same manner (*presence of sulfate*).

Dry about 1 gm. of phentolamine methanesulfonate, accurately weighed, at 60° in a vacuum for 4 hours: the loss in weight does not exceed 0.5%.

Char about 1 gm. of phentolamine methanesulfonate, accurately weighed, cool the residue, add 1 ml. of sulfuric acid, heat cautiously until evolution of sulfur trioxide ceases, ignite, cool, and weigh: the residue does not exceed 0.1%.

Assay: (Phentolamine Methanesulfonate) Prepare a 0.001% solution of phentolamine methanesulfonate as follows. Transfer to a 100 ml. volumetric flask 0.1 gm. of phentolamine methanesulfonate, accurately weighed, fill to the mark with alcohol, and mix. Transfer to a second 100 ml. volumetric flask 10 ml. of this solution, fill to the mark with alcohol, and mix. Transfer to a third 100 ml. volumetric flask 10 ml. of this last solution, fill to the mark with alcohol, and mix. Spectrophotometrically determine the absorbancy in a 1 cm. quartz cell at 280 mμ, using alcohol as a blank. The concentration of phentolamine methanesulfonate in the solution in mg./ml. = absorbancy ÷ 21.2. The amount of phentolamine methanesulfonate is not less than 95.0 nor more than 105.0%.

Transfer to a 100 ml. beaker about 0.1 gm. of phentolamine methanesulfonate, accurately weighed. Dissolve the powder in 15 ml. of water. Add slowly, while stirring, 20 ml. of clear 10% tricholoroacetic acid, and let the beaker stand for at least 1 hour. Suction filter the precipitate of phentolamine trichloroacetate through a tared sintered glass crucible, removing any precipitate which adheres to the beaker with three 5 ml. portions of 10% trichloroacetic acid. Wash the precipitate with five 2 ml. portions of water, dry the precipitate in a vacuum over phosphorus pentoxide for 4 hours, and weigh. Each gram of phentolamine trichloroacetate formed is equivalent to 0.8487 gm. of phentolamine methanesulfonate. The amount of phentolamine methanesulfonate is not less than 98.0 nor more than 102.0%.

Dosage Forms of Phentolamine Methanesulfonate

POWDER. *Physical Properties:* The lyophilized powder has the same physical properties as are given for the active ingredient in the monograph for phentolamine methanesulfonate, but the powder consists of small needles that are more readily soluble.

Identity Tests: The powder responds to the identity tests for the active ingredient in the monograph for phentolamine methanesulfonate.

Assay: (Phentolamine Methanesulfonate) Transfer to a 100 ml. volumetric flask 0.1 gm. of the powder, accurately weighed, fill to the mark with alcohol, and mix. Proceed as directed in the spectrophotometric assay for phentolamine methanesulfonate in the monograph for phentolamine methanesulfonate starting with "Transfer to a second 100 ml. volumetric flask . . ." The concentration of phentolamine methanesulfonate in the solution in mg./ml. = absorbancy ÷ 21.2. The amount of phentolamine methanesulfonate is not less than 95.0 nor more than 105.0% of the labeled amount.

Ciba Pharmaceutical Products, Inc., Summit, N. J.

Lyophilized Regitine Methanesulfonate: 5 mg. ampuls. Each ampul contains 5 mg. of phentolamine methanesulfonate. Packaged with 1 cc. vial of water for injection. U. S. patent 2,503,059.

Tetracaine Hydrochloride-U.S.P. (See New and Nonofficial Remedies 1953, p. 41).

Winthrop-Stearns Inc., New York.

Solution Pontocaine Hydrochloride 0.2% with Dextrose 6% (For Saddle Block Anesthesia): 2 cc. ampuls. A hyperbaric solution containing 2 mg. of tetracaine hydrochloride in each cubic centimeter.

Solution Pontocaine Hydrochloride 0.3% with Dextrose 6% (For Spinal Anesthesia): 5 cc. ampuls. A hyperbaric solution containing 3 mg. of tetracaine hydrochloride in each cubic centimeter.

COUNCIL ON FOODS AND NUTRITION

ACCEPTED FOODS

In order to encourage the production of fruit juices containing high natural levels of vitamin C, the Council on Foods and Nutrition accepts canned tomato juice in which there is at least 17.5 mg. of ascorbic acid per 100 ml. at the time of packing.

The following product has been accepted by the Council and permission to use the seal has been granted.

JAMES R. WILSON, M.D., *Secretary.*

Aslesen Company, Minneapolis.

Banquet Table Brand Tomato Juice.

This product is vacuum packed in 7 oz., 46 oz. and #10 size containers. The vitamin C content averaged 24.0 mg. per 100 ml. for the 1952 packing season.

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SURGICAL TREATMENT OF BRONCHIECTASIS

Laennec in 1819 described bronchiectasis as a clinical and pathological entity. Bronchography with the aid of iodized oil, introduced by Sicard and Forestier, added more precise knowledge of the disease in the past two decades. The condition is recognized today as a common chronic pulmonary disease, being more commonly observed than pulmonary tuberculosis. As a result of repeated attacks of bronchopneumonia, usually in childhood, chronic inflammatory changes develop in the bronchial mucosa and submucosa. These changes may lead to a state of extensive irreversible fibrosis of a segment or of an entire lobe, weakening of the bronchial wall, and stenosis of bronchi, with dilatation distal to the stenosis. Stagnation of purulent secretion, often containing anaerobic and aerobic micro-organisms, occurs in the ectatic areas distal to the stenosis. Fibrosis of parenchyma and compensatory emphysema develop.

Symptoms are those of a chronic cough, productive of purulent sputum. There may be hemoptysis, chest pain, recurrent attacks of pneumonia or of bronchopneumonia, dyspnea, chronic sepsis, and invalidism. In addition to standard roentgenograms of the chest, bronchography is essential for a definite diagnosis. Medical treatment of bronchiectasis is directed toward mechanical drainage, control of infection, and measures to improve the general health. Postural drainage is probably the most important single mechanical procedure for emptying the dependent bronchiectatic cavities of their secretions. Bronchoscopy is useful for the removal of unsuspected foreign bodies and for the diagnosis of primary bronchogenic carcinoma, which is often masked by bronchiectasis. Segmental location of the disease within the lung may also be aided by bronchoscopy. Its value in the treatment is at best palliative. Chemotherapy and antibiotics aid in the suppression of sensitive micro-organisms. Sinusitis usually develops in the course of the disease and serves to aggravate the condition by giving rise to repeated infection. It is not an etiological factor in bronchiectasis.

The survey by Perry and King [1] of 400 patients indicates the poor prognosis of patients treated medically. The irreversible lesions of bronchiectasis cannot be influenced by medical management, even though it may contribute greatly to the comfort of the patient. Chronic invalidism beginning in childhood, continuing throughout life, and characterized by mental lethargy and ineptitude, physical unfitness, and social maladjustment is the inevitable picture of any untreated or unsuccessfully treated case of bronchiectasis.

Today the consensus is that bronchiectasis can be cured only by a resection of the diseased segments of the lung. Brunn [2] in 1929 reported six one-stage lobectomies with one death. An important advance was the introduction by Churchill and Belsey [3] of the technique of segmental resection. Overholt and Langer [4] (1947) emphasized that the characteristic distribution of lesions in bronchiectasis is segmental. The removal of the segment presents no undue technical difficulties or risk. Segmental resection not only eradicates all the diseased tissue but also eliminates the necessity of sacrificing the uninvolved segments. This approach to the problem, according to Overholt and Langer, permits the accomplishment of two fundamental principles of surgery: (1) cure of the patient and (2) preservation of as much functional tissue as possible. Bronchiectasis is primarily a segmental disease and is frequently bilateral, usually involving certain pulmonary segments within the lobe rather than an entire lobe.

In 1947 Kay [5] reported 220 consecutive lobectomies with only one operative death. Ochsner and his coworkers [6] reported in 1949 on 92 operations without a single hospital fatality. Subsequent death from pulmonary disease has occurred in 3.1% of their cases. Unsatisfactory results were recorded in 4.2%. In a recent communication Storey and Laforet [7] report 100 resections performed on 92 patients. They emphasize that the great advance in the surgical therapy of bronchiectasis has been accomplished by adoption of the policy of limiting the resection to the involved segments, to the employment of individual hilar dissection, and to ligation technique. They also stress the necessity of bronchography to obtain a complete mapping of the tracheobronchial tree. In their series of patients the most frequently resected areas were the lingula of the left upper lobe, the right middle lobe, and the base segments of the lower lobe of both lungs. This appears to be the universally accepted distribution of bronchiectasis. The

1. Perry, K. M. A., and King, D. S.: Bronchiectasis: Study of Prognosis Based on Follow-Up of 400 Patients, Am. Rev. Tuberc. **41**: 531-548 (May) 1940.

2. Brunn, H.: Surgical Principles Underlying One-Stage Lobectomy, Arch. Surg. **18**: 490-515 (Jan.) 1929.

3. Churchill, E. D., and Belsey, R.: Segmental Pneumonectomy in Bronchiectasis: Lingula Segment of Left Upper Lobe, Ann. Surg. **109**: 481-499 (April) 1939.

4. Overholt, R. H., and Langer, L.: A New Technique for Pulmonary Segmental Resection: Its Application in the Treatment of Bronchiectasis, Surg., Gynec. & Obst. **84**: 257-268 (March) 1947.

5. Kay, E. B.; Meade, R. H. Jr., and Hughes, F. A. Jr.: Surgical Treatment of Bronchiectasis, Ann. Int. Med. **26**: 1-12 (Jan.) 1947.

6. Ochsner, A.; DeBakey, M., and DeCamp, P. T.: Bronchiectasis: Its Curative Treatment by Pulmonary Resection: An Analysis of Ninety-Six Cases, Surgery **25**: 518-532 (April) 1949.

7. Storey, C. F., and Laforet, E. G.: The Surgical Management of Bronchiectasis: A Review Based on the Analysis of 100 Consecutive Resections, U. S. Armed Forces M. J. **4**: 469-523 (April) 1953.

more localized the disease the better the expectation of complete extirpation with a curative or greatly beneficial result. The very young withstand major intrathoracic surgery remarkably well. There were two fatalities in Storey and Laforet's series of 100 resections. Of the 70 patients who were followed up for over six months or longer, the results were classified as excellent in 51 (73%), good in 12 (17%), fair in 4 (6%), and poor in 3 (4%).

Cure of bronchiectatic disease of the lung may be reasonably expected from resection, provided the disease is not too extensive, the patient is not elderly, and there exist no definite conditions contraindicating a major surgical intervention.

FOOD AND PREVENTIVE MEDICINE

The recently published paper by Conrad A. Elvehjem [1] on the importance of food in preventive medicine reveals clearly the need for applying adequate nutritional standards to all populations. Nutrition has become so important that it cannot be regarded casually; on the contrary, it must always be remembered in most, if not all, thorough diagnostic and therapeutic procedures. Today one can even speak of food therapy, since the word food embraces such a broad field, since food has been broken down into many substances, and since these substances can be applied specifically for treatment as well as for the prevention of nutritional disorders. In fact, they are often used in what at first seem to be unrelated health problems; however, further study would reveal the reasons for such therapy and at the same time would indicate the complexity and scope of modern nutritional practices.

Nutritional deficiency cannot be regarded, as was the situation some years ago, as being present only when such diseases as pellagra, beriberi, and scurvy are diagnosed. Not too long ago it was popular to speak of borderline deficiencies, but even this description seems to have outlived its usefulness. Elvehjem speaks of "conditioned deficiencies" and mentions diabetes mellitus, colitis, peptic ulcers, and anemia as health problems in which there is need to take an extra long look at the possibility of there being a deviation from the optimum nutrition. Also of special importance in this field are the diseases in which fever plays a prominent part. During fever there is an increased demand on some nutrients because of increased metabolism. At the same time, there is increased destruction of body tissues, loss of nitrogen, and perhaps a disturbance of the water balance. Of similar concern are diseases of the gastrointestinal tract, when absorption as well as utilization of nutrients must be considered. Thus one must be concerned not only with the likes and dislikes of the sick person in regard to nutrition but also with the requirements peculiar to his condition.

Like other researchers in the field of nutrition, such as W. C. Rose, Elvehjem has been especially interested in amino acids and also in enzymes. Some of his work reveals the interrelation of enzymes of the liver, amino acids, and disease. From it has come a practical point for immediate application in the relation between physician and patient. Elvehjem states in part: " . . . diseased conditions may result either suddenly or after long delayed periods. . . . these changes can be aggravated by an imbalance of amino acids which again emphasizes the importance of supplying amino acids in foods rather than in combinations which may be quite different than those usually encountered in food materials. . . . experimental findings indicate that the amino acids, in at least our most common protein foods, are readily released." Such information should guide the physician, who ought to warn his patients against unnecessary and possibly dangerous self-prescribing of vitamins, protein supplements, and amino acid preparations.

Partly on the basis of personal experiments on laboratory animals, Elvehjem warns of the health problems that may arise in later life when there are changes in metabolism during infancy. At the other end of the life span are the nutritional problems associated with geriatrics, about which much has been learned but even more remains to be discovered. Both Elvehjem and Ancel Keys have commented particularly on one phase of this. Keys has said: "Part of the problem of providing nutritional help for older persons consists in countering the claims of food faddists, the purveyors of special nostrums offered for nutritional purposes, and the writers who find the ready sale for books and articles promising miracles from peculiar diets." Elvehjem stresses this portion of the nutrition field by stating: "The worst enemy is the group of food faddists and the most vicious of these are the individuals who, by one method or another, place the M. D. after their name." Unquestionably related and of the same health significance are the so-called reducing diets, which may be causing disturbances that will be reflected in succeeding generations. Such diets, especially when they result in a high intake of one kind of food and the suboptimal intake of others, may prove subsequently to be harmful.

It is obvious that there is much to learn about nutrition, but this does not mean that that which already is known should not be applied now. There has been extended comment in recent years about health education. Many have been active in urging the adoption of healthful nutritional practices and the rejection of those that are harmful. In the field of nutrition there are excellent opportunities for all interested persons to apply one of the sound principles of health education—optimum nutrition. This is a wide field with many interesting aspects, but there should be no hesitation about applying immediately what already is known to be best for the population.

1. Elvehjem, C. A.: The Importance of Food in Preventive Medicine, Am. J. Pub. Health 43: 523 (May) 1953.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

Vocational Rehabilitation for the Blind

Senator Potter (R., Mich.) has introduced a bill, S. 2436, to amend the Vocational Rehabilitation Act at the request of the National Rehabilitation Association. This bill would include the following important additions to this federal law. 1. It defines blindness, providing for certification by physicians skilled in diseases of the eye. 2. It permits the use of federal funds for the purchase of stocks of goods for business ventures for disabled persons generally. 3. Federal funds could be expended to pay for the supervision of work of the disabled and to finance their training, demonstrations, research, and fellowships, and to help in working out marketing arrangements. 4. It would allow federal payments to states whose programs of hospitalization exceed the 90 day limit. 5. It authorizes those state agencies for the blind that operate separately from other state rehabilitation agencies to deal directly with the Federal Office of Vocational Rehabilitation. 6. The title of the Office of Vocational Rehabilitation would be changed to Bureau of Vocational Rehabilitation and would continue in the Department of Health, Education, and Welfare. This bill is identical with H. R. 5562 (Rhodes) and H. R. 5610 (Williams), both previously reported. This measure was referred to the Labor and Public Welfare Committee.

Additional Vocational Rehabilitation Legislation

Senator Potter (R., Mich.) has introduced S. 2437 at the request of the National Rehabilitation Association. This bill would further amend the National Rehabilitation Act to authorize federal grants to the states for the establishment of rehabilitation centers to provide physical and occupational therapy, vocational or exploratory vocational training, testing, fitting or training in use of prosthetic devices, and adjustment training and evaluation or control of special disabilities. This bill would also allow the use of federal funds to establish workshops in which remunerative employment could be provided to severely disabled persons who cannot be absorbed in the competitive labor market under the direction of a public or private nonprofit agency. In each case the federal share of the cost would range from one-third to two-thirds, depending on the per capita wealth of the state. This measure is identical with H. R. 5563 (Rhodes) and H. R. 5609 (Williams), previously reported. This bill was referred to the Labor and Public Welfare Committee.

Knowland Compromise for Bricker Constitutional Amendment

Senator Knowland (R., Calif.) in the substitute S. J. Res. 1 offers a compromise for the Bricker Constitutional Amendment. President Eisenhower has endorsed Knowland's substitute, the text of which is as follows:

"Section 1. A provision of a treaty or other international agreement which conflicts with the Constitution shall not be of any force or effect. The judicial power of the United States shall extend to all cases, in law or equity, in which it is claimed that the conflict described in this amendment is present.

"Sec. 2. When the Senate consents to the ratification of a treaty the vote shall be determined by yeas and nays, and the names of the persons voting for and against shall be entered on the Journal of the Senate.

"Sec. 3. When the Senate so provides in its consent to ratification, a treaty shall become effective as internal law in the United States only through the enactment of appropriate legislation by the Congress.

"Sec. 4. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of three-fourths of the several states within seven years from the date of its submission."

Prepared by the Bureau of Legal Medicine and Legislation.

Public Assistance

Congressman Bennett (D., Fla.) has introduced a measure, H. R. 6505, which would change the formula used in computing the federal share of state public assistance programs. The federal contributions now for aged, blind, and permanently and totally disabled are four-fifths of the first $25 and one-half of an additional $30 in public assistance programs. The Bennett bill would raise the federal share to five-sixths of the first $30 and one-half of an additional $30. The present federal contributions to programs for aid to dependent children are four-fifths of the first $15 for the first child and one-half of an additional $15. For each additional child the federal contribution is four-fifths of the first $15 and one-half of an additional $6. Congressman Bennett in H. R. 6505 would make the federal contribution five-sixths of the first $18 and one-half of an additional $15 for the first child; for each additional child the federal share would be five-sixths of the first $18 and one-half of an additional $6. The measure was referred to the Ways and Means Committee.

Leprosy

Congressman Thompson (D., La.) has introduced a bill, H. R. 6285, which is identical with S. 1584, introduced by Senator Murray and previously reported. Congressman Thompson proposes that the U. S. Public Health Service take the lead in a drive against leprosy by (1) an information campaign, (2) construction of five additional leprosariums, (3) provision of treatment methods for veteran patients in VA hospitals and nonveterans in other hospitals, (4) establishment of rehabilitation and reemployment programs for discharged leprosy patients, and the selection of and arrangement with private physicians to treat leprosy patients at home, (5) money allowances for patients in federal leprosariums and treatment centers and for dependents of such patients, and (6) authorization of additional funds for research. This measure was referred to the Interstate and Foreign Commerce Committee.

Broadening Social Security

Congressman O'Brien (D., Mich.) has introduced a bill, H. R. 6320, which would broadly revise the old age and survivors insurance system in a number of ways, including the extension of coverage to a number of groups not now covered, increasing the portion of wages subject to tax and increasing monthly dollar benefits and the amount a retired person under 75 could earn in a month without suspension of his benefit payments. Provision would be made for retirement benefits for permanently and totally disabled persons, and cash sickness insurance would be provided for persons temporarily disabled. This bill is identical with S. 2260, introduced by Senator Lehman, and approximately 20 other previously reported bills. The measure was referred to the Ways and Means Committee.

RECENT A. M. A. PUBLICATIONS

A Doctor for Your Community, containing suggestions for the use of communities in obtaining physicians for their areas. Prepared by the Council on Medical Service.

National Conference on Rural Health, a pamphlet containing a digest of the proceedings of the eighth National Conference on Rural Health, held at Roanoke, Va., in February, 1953. Prepared by the Council on Rural Health.

Quarterly Cumulative Index Medicus, volume 50, which covers the literature for the last half of 1951, is now off the press and available for purchase from the Order Department of the American Medical Association. The next volume is in production and should be completed by the end of the year.

MEDICAL NEWS

CALIFORNIA

Research on Leukemia.—Dr. Alfred Goldman, chief of professional services, announces a special project for research on leukemia at the City of Hope, Duarte. The leukemia unit, which operates as part of the tumor hospital, includes hospital beds and facilities for research in the cancer research institute. A leukemia committee, set up to administer the project, includes Dr. Fred S. Preuss, Duarte, director, department of pathology; Dr. Riojun Kinosita, director, cancer research institute; Dr. Aaron F. Rasmussen, City of Hope consultant in virology and professor of infectious diseases at the University of California at Los Angeles; and Dr. Hermann Karl Sachs, director, City of Hope tumor hospital and clinics.

COLORADO

Dr. Busse Heads Department at Duke.—Dr. Ewald W. Busse, chief, division of psychosomatic medicine, Colorado General Hospital, Denver, has been appointed chairman of the psychiatric department of Duke University School of Medicine, Durham, N. C. Dr. Busse, who has been at the Colorado University Medical Center since 1946, heads the mental hygiene and child guidance clinic and directs the electroencephalograph laboratory. He will assume his new post Nov. 1.

Cancer Seminar at the Broadmoor.—The fifth annual cancer seminar, sponsored by the Penrose Cancer Hospital and the American College of Pathologists, will be held at the Broadmoor Hotel, Colorado Springs, Sept. 5. The subject of the seminar will be "Lesions of the Small Bowel." Dr. Paul C. Swenson, professor of radiology, Jefferson Medical College of Philadelphia, will be guest radiologist and Dr. William A. Meissner of the New England Deaconess Hospital, Boston, guest pathologist. The guest of honor will be Dr. Harry M. Weber of the Mayo Foundation, Rochester, Minn.

DISTRICT OF COLUMBIA

Society News.—The Washington Academy of Surgery has elected Dr. George K. Nutting, president; Dr. W. Ross Morris, vice-president; and Dr. Duane C. Richtmeyer, secretary-treasurer.

University News.—The following members of the faculty of George Washington University School of Medicine, Washington, D. C., each having given 25 years of teaching service to the university, were honored by the University Alumni Association at a luncheon in Washington, where each was presented with a scroll: Dr. Walter A. Bloedorn, dean of the school of medicine; Dr. Harry F. Anderson, professor of dermatology and syphilology; Dr. Laurence L. Cockerille, assistant clinical professor of obstetrics and gynecology; Dr. Daniel B. Moffett, professor of otolaryngology; Dr. Maurice Protas, associate in medicine; and Dr. Herbert P. Ramsey, clinical professor of obstetrics and gynecology.

Personal.—Dr. John B. Barnwell, chief, Tuberculosis Division of the Veterans Administration in Washington, D. C., since 1946, recently received from his alma mater, Trinity College, Hartford, Conn., an honorary degree of doctor of science.——Dr. Thomas S. Lee, Washington, D. C., permanent honorary president of the Washington Heart Association, which he founded in 1927, recently received a medal and High Citation certificate from the American Legion for his work with the Washington Heart Association.——Dr. Jonathan M. Williams, Washington, D. C., was recently elected to honorary membership in the Medical Society of the Dominican Republic. Presentation of the diploma was made at a buffet supper at the embassy of the Dominican Republic.——Dr. Brian B. Blades, since 1946 head of the surgical department of George Washington University Hospital, Washington, D. C., received a citation for distinguished service from the University of Kansas Alumni Association during commencement exercises in Lawrence, Kan. The citation, made on the basis of his "contribution to mankind," mentioned his service during World War II in helping to establish chest clinics in Army general hospitals and his work in developing the operation for relief of intractible asthma. Dr. Blades was chief of the thoracic surgery section of the Walter Reed Army Hospital and consultant to the Surgeon General during World War II.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

ILLINOIS

Committee for Crippled Children.—The University of Illinois board of trustees has appointed the following as members of the Professional Advisory Committee of the Division of Services for Crippled Children: Drs. Floyd S. Barringer, Springfield, Gerald M. Cline, Bloomington, Francis L. Lederer, Chicago, John H. Mathis and Robert B. Rutherford, Peoria, and Lawrence D. Ruttle, Joliet.

Personal.—Dr. John D. Scouller, Pontiac, Dr. Christian H. Zoller, Litchfield, and Dr. George F. Blough, Odell, were recently awarded 50 year membership certificates by the Illinois State Medical Society.——Dr. Roland I. Pritikin, Rockford, attended the seventh International Congress of the History of Science, Jerusalem, Israel, Aug. 3-7, as official delegate or observer for a number of American, Western Hemisphere, and international medical societies.

Chicago

Dr. Campbell Made Acting Superintendent.—Dr. Duncan D. Campbell, assistant superintendent, Chicago State Hospital, has been made acting superintendent. Dr. Campbell has been affiliated with the hospital since 1946. He formerly served as superintendent of the Missouri State Hospital, St. Joseph, and clinical director and manager of Veterans Administration and mental hospitals in Iowa, Maryland, and Arkansas.

Blatt Memorial Lecture.—The pediatric staff of Cook County Hospital announces that the annual Morris Lamm Blatt Memorial Fund lecture will be given Oct. 26 in conjunction with the Dr. Julian D. Levinson Research Foundation. Dr. Milton G. Bohrod, director, clinical and pathological laboratories, Rochester (N. Y.) General Hospital, will speak on pathology of allergy at 8:30 p. m. in the medical amphitheater of Cook County Hospital.

KENTUCKY

Doctor Reynolds Day.—In recognition of his more than 50 years of service as a general practitioner in Carlisle, the community honored Dr. Benjamin F. Reynolds at a special father's day program in the Christian Church and at a dinner given by Dr. Eslie Asbury, Cincinnati, at his Forest Retreat Farm. Dr. Reynolds was further honored at the alumni luncheon of his alma mater, the University of Louisville School of Medicine, where he was awarded a 50 year diploma.

Society News.—Some 30 physician members of the Committee on Emergency Medical Service of the Kentucky State Medical Association and its subcommittees recently spent a day in Louisville, planning ways to provide adequate medical care for major emergencies.——A long service ended recently when Drs. Herbert G. Davis, Marrowbone, and William F. Owsley, Burkesville, resigned as president and secretary, respectively, of the Cumberland County Medical Society and were succeeded by Drs. Joseph Schickel and William F. Boyer of

Burkesville.——At a joint meeting in Louisville, committees of the Kentucky State Dental Association and the Kentucky State Medical Association approved a program to promote further improvements in dentist-physician relationships and public service.——Dr. Guthrie Y. Graves, Bowling Green, vice-president from Western Kentucky, was elected president of the Kentucky State Medical Association at a recent meeting of its council. Dr. Graves will fill the vacancy created by the death on May 5 of Dr. R. Haynes Barr, Owensboro, until after the next annual meeting in September, when officers elected at last year's meeeting will be installed.

LOUISIANA

Dr. Albert Dent Honored.—Albert W. Dent, LL.D., president of Dillard University, New Orleans, has been elected president of the National Health Council. Dr. Dent became president of the university in 1941 after 6 years as superintendent of the Flint-Goodridge Hospital of Dillard University. He served as a delegate to the first World Health Assembly at Geneva in 1948 and was vice-president of the National Tuberculosis Association in 1949 and 1950. He is a member of the committee on faculty fellowships of the Ford Fund for the Advancement of Education.

University News.—Tulane University of Louisiana School of Medicine, New Orleans, recently received $12,000 from the Louisiana chapter of the Arthritis and Rheumatism Foundation to support a program of research and clinical studies. Dr. Thomas E. Weiss and Maridel Saunders, instructors in medicine, will conduct the work.——Rufus C. Harris, LL.D., president of Tulane University of Louisiana School of Medicine, New Orleans, has announced the following promotions: (1) to associate professor—Dr. Guillermo M. Carrera, tropical medicine and pathology; Henry E. King, Ph.D., psychiatry and psychology; Dr. Edgar H. Little, clinical radiology; and Dr. Russell Monroe, psychiatry; and (2) to assistant professor—Dr. John H. Dent, pathology; Drs. Norman Hunt and Sam A. Threefoot, medicine; Dr. Rodney C. Jung, tropical medicine; Dr. Kenneth H. Beach, clinical psychiatry; Dr. George D. Berkett, orthopedics; Drs. Joseph K. Bradford, Carl Nadler Jr., and John R. Powers, clinical medicine; Dr. Edward T. Krementz, surgery; Dr. John R. Mitchell, pediatrics; and Dr. David W. Von Gelder, clinical pediatrics.

MICHIGAN

Hospital News.—The Evangelical Deaconess Hospital in Detroit recently honored three staff physicians for a combined medical practice of 151 years. Scrolls were presented at a dinner in the Lochmoor Country Club, Grosse Pointe, to Drs. Charles W. Knaggs, Rudolph L. Pfeiffer, and Mortimer E. Danforth.

Seminars in Industrial Medicine.—The Detroit Industrial Physicians' Club, in cooperation with the faculty of Wayne University College of Medicine, Detroit, recently presented its second series of seminars in industrial medicine for undergraduate students. Two of the seminars were held at the college, where Gordon H. Scott, Ph.D., dean, served as chairman, and two were held on company premises. Dr. Henry S. Brown, Detroit, acted as host at the Michigan Bell Telephone Company and Dr. John H. Ganschow, Detroit, at the Chevrolet Gear and Axle Division of General Motors. Detroit physicians presented the following program: "Definition and Historical Development of Industrial Medicine," Alfred H. Whittaker; "Trauma to the Extremities and Rehabilitation Thereof," Charles G. Johnston; "Advantages of Industrial Medicine as a Specialty," Peter B. Rastello; "Accident Proneness and Accident Prevention," Henry S. Brown; "Neuropsychiatric Problems as Seen by the Industrial Physician," Gordon A. Eadie; "Cooperation Between Private Practitioner and Industrial Physician," William J. Fulton; "Clinical Problems of Tuberculosis and Pneumoconiosis" and "Control of Dusts," Frank J. Jarsen; "On the Job Management of Cardiacs and Hypertensives," Earle A. Irvin; "Health Insurance and Retirement Benefits," Charles J. Clark; "Plumbism and Its Control," Arlington F. Lecklider; "Occupational Skin Irritants and Dermatoses," Loren W. Shaffer; "Administration and Operation of Industrial Medical Programs," Earl F. Lutz; and "Rehabilitation of the Injured Worker," Lyndle R. Martin. Mr. J. C. Radcliffe discussed "Working Conditions and the Control of Health Hazards."

Personal.—Dr. Thomas Francis Jr., Ann Arbor, was recently awarded the James D. Bruce memorial medal by the American College of Physicians for his research work in various diseases.——Dr. Samuel A. Butler, senior physician, Pontiac State Hospital, was recently honored at a testimonial dinner after announcing his intention to retire after 44 years of service.——Dr. Leo H. Bartemeier, Detroit, president of the American Psychiatric Association and chairman of the Committee on Mental Health of the American Medical Association, has been appointed a member of the National Manpower Council, a private organization established at Columbia University, New York, by President Eisenhower in 1951.——Dr. Warren A. Smith, Berrien Springs, who has served his community for 50 years as a physician and has frequently been its health officer, was recently honored at an open house at the Lions' clubhouse, sponsored by numerous fraternal and civic organizations.——Dr. Harold F. Closz, Muskegon, has been awarded an honorary degree of doctor of science by Central College, Pella, Iowa, from which he was graduated 50 years ago. Dr. Closz, who has been surgical consultant at Mercy Hospital from 1925, was also affiliated with Hackley Hospital from that date, serving as chief of surgery or chief of staff from 1932 to 1950.——Dr. William T. Hyslop, who has been a member of the Traverse City State Hospital staff since 1938 and in charge of the outpatient department and mental hygiene clinics since 1940, has been appointed director of the adult mental health clinic of Saginaw General Hospital. The new clinic, which will be jointly supported by state and local funds and will serve mentally disturbed adults from Saginaw, Bay, Midland, and Tuscola counties, will be housed in the Davis House Nursing Home.

NEW JERSEY

Society News.—The Radiological Society of New Jersey has elected the following officers for 1953-1954: Drs. Vincent M. Whelan, Red Bank, president; Nicholas G. Demy, Plainfield, vice-president; Salomon Silvera, Jersey City, secretary; and Carye-Belle Henle, Newark, treasurer.——At its annual meeting, the New Jersey Dermatological Society elected Drs. Frederick C. Licks, South Orange, president; Emanuel M. Satulsky, Elizabeth, vice-president; Seymour L. Hanfling, East Orange, secretary; and Harry C. Goldberg, Plainfield, treasurer.

Belgian Awards for Tryparsamide Research.—The Belgian government recently presented the Cross of the Belgian Royal Order of the Lion and a $10,000 award to Dr. Louise Pearce, Belle Mead, for her work on the use of tryparsamide in the control of sleeping sickness. Dr. Pearce studied the effects of the drug on sleeping sickness in the Belgian Congo where it is now widely used. Later, with three collaborators, she continued the research at the Rockefeller Institute in New York. Two of her colleagues, Walter A. Jacobs, Ph.D., New Rochelle, and Michael Heidelberger, Ph.D., of Columbia University College of Physicians and Surgeons, New York, were awarded the decoration of Officer of the Order of Leopold II in ceremonies at the St. Regis Hotel, New York, and were given $2,000 each. An additional $4,000 was paid to the estate of the third collaborator, the late Dr. W. H. Brown of Princeton University.

NEW MEXICO

State Medical Election.—At the annual meeting in Albuquerque the New Mexico Medical Society elected Dr. Albert S. Lathrop of Santa Fe, president, Dr. John F. Conway, Clovis, president-elect, Dr. Stuart W. Adler, Albuquerque, vice-president, and Dr. Theodore E. Kircher Jr., Albuquerque, secretary-treasurer.

NEW YORK

Fellowship in Tuberculosis Research.—The New York Tuberculosis and Health Association announces that the James Alexander Miller fellowship for research in tuberculosis will be available from July 1, 1954, to June 30, 1955. This fellowship is designed to support a qualified medical investigator who will devote full time to a research project on tuberculosis. Assurance must be provided that the applicant will be acceptable in the laboratory or clinic of his choice and that the facilities necessary for the pursuit of the work will be available. The annual stipend will be $5,000. Awards will be announced Dec. 1. Application forms, which should be submitted in duplicate by Oct. 1, may be obtained from the New York Tuberculosis and Health Association, 386 Fourth Ave., New York 16.

Personal.—Dr. Herman E. Hilleboe, Albany, state health commissioner, has announced the provisional appointment of Dr. James J. Quinlivan, assistant director of the division of local health services, as director of the department's office of public health education. Dr. Quinlivan, who joined the state health department as an epidemiologist-in-training in 1937 after a year's private practice in Buffalo, became an assistant district state health officer in 1938, a district state health officer in 1942, and assistant director of the division of local health services in 1948.——Dr. Donald G. Dickson, Troy, has been appointed second deputy commissioner of health in the Rensselaer County health department.——Dr. Raymond G. Wearne, director of Wassaic State School for the past 16 years, has retired after 40 years of state service. Dr. Wearne has been affiliated with Binghamton State Hospital, Central Islip, Willard, Brooklyn, and Manhattan state hospitals.——Dr. Andrew C. Fleck, deputy commissioner of health in the Rensselaer County Health Department since May 29, 1950, was graduated recently from Albany Law School with a bachelor of law degree. In addition to this and his medical degree from Albany Medical College, Dr. Fleck holds a degree of master of public health, Johns Hopkins University School of Hygiene and Public Health, Baltimore.

New York City

Clinical Professors Appointed.—At the State University of New York College of Medicine, New York City, Dr. Charles W. Mueller has been appointed clinical professor of obstetrics and gynecology and Dr. Clifford F. Storey, clinical professor of surgery.

Courses in Accident Prevention.—The Center for Safety Education, New York University, announces that the fall term evening program in industrial and traffic accident prevention will begin Sept. 21. Courses offered in the fall term are:

Accident Prevention—Its Background, Objectives, and Relationships.
Philosophy and Basic Principles of Accident Prevention.
Industrial Hazards—Mechanical and Personal Control Methods.
Fire Prevention and Protection Inspection.
Organization of Fleet Safety Programs.
Vision in Industrial Safety and Motor Vehicle Operations.
Effective Speaking in Accident Prevention.
Principles of Safety Inspection.

The following special courses are also offered:

Marine Accident Prevention.
Hotel Accident Prevention.
Accident Prevention for Small Firms.
Hospital Accident Prevention.

Information may be secured from the Center for Safety Education, New York University, Washington Square, New York 3.

NORTH DAKOTA

State Medical Election.—At the annual meeting the North Dakota State Medical Association installed Dr. Joseph Sorkness of Jamestown as president and appointed Dr. Philip H. Woutat, Grand Forks, president-elect; Drs. David J. Halliday, Kenmare, and Reuben H. Waldschmidt, Bismarck, vice-presidents; Dr. Edwin H. Boerth, Bismarck, secretary; and Dr. Ernest J. Larson, Jamestown, treasurer.

OHIO

County Secretary Honored.—Dr. George A. Woodhouse, Pleasant Hill, who has served for 25 years as secretary of the Miami County Medical Association, was recently honored at the annual dinner of the association. A set of luggage was presented to Dr. and Mrs. Woodhouse on behalf of the county group. Dr. Woodhouse, who has practiced in Pleasant Hill for 28 years, has served as both president and secretary of the Second Councillor District Medical Society, has been an A. M. A. delegate from Ohio since 1942, and is active in committee work for both the state and the national associations. He is a staff member of the Memorial Hospital in Piqua and an associate staff member of Stouder Memorial Hospital, Troy. Dr. Woodhouse has served on the Board of Education in Pleasant Hill and on the Board of Public Affairs for 10 years, 8 years as its president. Dr. Dale A. Hudson of Piqua will succeed Dr. Woodhouse as secretary of the county association.

Radiological Health Training Program.—Short, tuition-free courses in radiological health will be presented by the Public Health Service at the Environmental Health Center, Cincinnati, as follows: basic courses, stressing basic radiation physics and survey techniques, Oct. 5-16, Jan. 11-22, 1954, and May 3-14, 1954; intermediate course, emphasizing laboratory assay of radioelements and x-ray survey techniques, Oct. 19-30, Jan. 25 through Feb. 5, 1954, and May 17-28, 1954; and advanced course, for professional personnel concerned in particular with occupational health problems, Feb. 8-19, 1954. These courses are designed to provide personnel working in health departments and other organizations with knowledge of the health hazards associated with radiation. Candidates should have a degree in medicine, engineering, or science (physical or biological). Information may be obtained from the Chief, Radiological Health Training Section, Public Health Service, Environmental Health Center, Cincinnati.

TENNESSEE

University News.—Dr. Daniel A. Brody, part-time instructor in medicine at the University of Tennessee College of Medicine, Memphis, has joined the division of medicine on a full-time basis.——Dr. Frank L. Roberts, assistant dean of the University of Tennessee College of Medicine, Memphis, since 1949, has been promoted to the position of associate dean. Dr. Roberts, who joined the staff of the college of medicine in 1936 as professor and chief of the division of preventive medicine, was public health officer of Gibson County for many years before he moved to Memphis. He is president of the Tennessee Public Health Association.

TEXAS

State Medical Election.—At its centennial session in Houston the Texas Medical Association elected Dr. George Turner, El Paso, president; Dr. Francis J. L. Blasingame, Wharton, president-elect; Dr. Andrew S. Tomb, Victoria, vice-president; Dr. John M. Travis, Jacksonville, secretary; and Dr. Thomas H. Thomason, Fort Worth, treasurer.

Personal.—Dr. Hatch W. Cummings Jr., Houston, was recently elected president of the Texas Academy of Internal Medicine.——Dr. Theodore R. Hannon, a former president of the Harris County Medical Society, was recently named president of St. Joseph's Infirmary medical staff, Houston.——Dr. Alvis E. Greer, Houston, president-elect of the American College of Physicians, has announced his retirement as editor of the *Medical Record and Annals,* after eight years in that position. Dr. Greer has served as president of the Harris County Medical Society and as chairman of the A. M. A. Section on Diseases of the Chest, and is professor of clinical medicine, Baylor University College of Medicine, Houston.——Dr. C. Frank Brown, Dallas, has been appointed medical director of the Southwestern Life Insurance Company of Dallas.

Society News.—At a recent meeting in Houston the Texas Diabetes Association elected Dr. Raymond L. Gregory, Galveston, president; Drs. George M. Jones, Dallas, and Laurence B. Reppert, San Antonio, vice-presidents; and Dr. Edmond K.

Doak, Houston, secretary-treasurer.——At the annual meeting, the Texas Neuropsychiatric Association named Dr. James R. Blair, San Antonio, president; Drs. Stephen Weisz, Dallas, and Edgar S. Ezell, Fort Worth, vice-presidents; and Dr. John L. Otto, Galveston, secretary-treasurer.——The Texas Orthopedic Association, during its annual meeting in Houston, elected Dr. Edward T. Smith, Houston, president, and Dr. John J. Hinchey, San Antonio, vice-president. Dr. Margaret Watkins, Dallas, was re-elected to serve as secretary-treasurer.——The Texas Dermatological Association has selected Dr. Maurice C. Barnes, Waco, president, and Dr. C. Duncan Stewart, Corpus Christi, vice-president. Dr. Thomas L. Shields, Fort Worth, was re-elected secretary.——The Texas Society of Gastroenterologists and Proctologists has named Dr. Cecil O. Patterson, Dallas, president; Drs. J. Wade Harris, Houston, and Edward J. Lefeber, Galveston, vice-presidents; and Dr. William T. Arnold, Houston, secretary-treasurer.——At the annual meeting in Houston, the Texas Railway and Traumatic Surgical Association elected Dr. William E. Crump, Wichita Falls, president; Drs. Raleigh R. White, Temple, and Albert O. Singleton Jr., Galveston, vice-presidents; and Dr. Walford D. Marrs, Fort Worth, secretary-treasurer.——Dr. James B. Robinett Jr., Houston, took office as president of the Texas Society of Anesthesiologists at its meeting in Houston. Other officers named at the meeting were Drs. Frank O. Barrett, El Paso, president-elect; Joe B. Wood, Dallas, vice-president; and Charles R. Allen, Galveston, secretary-treasurer.——Dr. Charles L. McGehee has been named president of the International Medical Assembly of Southwest Texas; Dr. John J. Hinchey, president-elect; Drs. Marvin A. Childers and Adolfo Urrutia, vice-presidents; and Dr. John M. Smith, secretary-treasurer. All the officers reside in San Antonio.——During its meeting in Houston, the Texas Heart Association installed Dr. Joseph F. McVeigh, Fort Worth, as president. Dr. George R. Herrmann, Galveston, was chosen president-elect; Dr. Daniel D. Warren, Waco, vice-president; and Mr. R. L. Thomas, Dallas, secretary-treasurer. Executive director and executive secretary are, respectively, Mr. Edgar M. Brown and Miss Roberta Miller, both of Dallas.

WEST VIRGINIA

State Medical Election.—At the annual meeting at White Sulphur Springs, the West Virginia Medical Association elected Dr. Russell Kessel, Charleston, president, to take office Jan. 1, 1954, and Drs. George F. Evans, Clarksburg, and James L. Patterson, Logan, first and second vice-presidents, respectively. Dr. T. Maxfield Barber, Charleston, was renamed treasurer for his 27th consecutive term. The 1954 convention will be held at the Greenbrier in White Sulphur Springs, Aug. 19-21.

WISCONSIN

Dr. Bear Honored.—At the annual dinner for medical men given by the sisters of St. Clare Hospital in Monroe, Dr. Wilson G. Bear was commended for his 50 years of service to the Monroe community. One of the founders of the Monroe Clinic, Dr. Bear was also active in developing the Loofbourow Hospital (now the Evangelical Deaconess Hospital) and formerly served as chief of staff of St. Clare Hospital.

Orthopedic Clinics.—Orthopedic field clinics have been scheduled as follows by the Bureau for Handicapped Children, State Department of Public Instruction, for persons under 21: Ashland, Aug. 13-14; Wausau, Aug. 26-27; Manitowoc, Sept. 2-3; Marinette, Sept. 9; Kenosha, Sept. 16-17; Green Bay, Sept. 24-25; Superior, Sept. 30-Oct. 1; Racine, Oct. 8-9; La Crosse, Oct. 13-16; Sheboygan, Oct. 20-30; Chippewa Falls, Nov. 3-4; Rhinelander, Nov. 11-12; Eau Claire, Nov. 19-20; Appleton, Nov. 23-24; and Fond du Lac, Dec. 2-3. Parents and physicians are invited to attend the clinic with the child. If the public health nurse believes that the child referred to the clinic for orthopedic reasons is also in need of other services, the bureau asks that it be notified of this fact. Referral forms, obtainable from the Bureau for Handicapped Children, Room 146 North, State Capitol, Madison 2, should be requested in advance of the clinic date.

GENERAL

Grants for Travel to Science Congress.—The National Science Foundation will receive applications for grants to assist in payment of travel expenses to the Pacific Science Congress, Quezon City, Philippines, Nov. 16-28. Application forms, which may be obtained from the National Science Foundation, Washington 25, D. C., should be filed before Sept. 1.

Congress of Ophthalmology Invites Papers.—The International Congress of Ophthalmology, which will be held in New York, Sept. 12-17, 1954, has selected as the chief topics for discussion primary glaucoma and etiology of uveitis. A number of voluntary papers by authors on subjects of their own choosing will also be heard. Original papers should be sent before Jan. 1, 1954, to the secretary-general, Dr. William L. Benedict, 100 First Ave. Bldg., Rochester, Minn.

Crippled Children's Magazine.—With the June issue, the *Crippled Child* magazine adopted a new format and a change in its 30-year-old editorial policy. Formerly directed at professional workers, it will now be directed more toward the problems confronting parents and others interested in guiding the lives of crippled children. Technical material will henceforth be issued in special pamphlets. Named as consulting editors of the magazine, which is published by the National Society for Crippled Children and Adults, are Dr. Noah D. Fabricant, Chicago, and Earl S. Miers, member of the executive committee of the society.

Physicians Needed in Canal Zone.—The Health Bureau, Canal Zone, is urgently in need of physicians. Vacancies occur from time to time in practically all specialties, but the present shortage is most acute in the field of obstetrics and gynecology; there are vacancies also for general practitioners. Starting salaries range from $7,425 (Civil Service rating GS-11) to $10,450 (Civil Service rating GS-13), according to training, experience, and type of position. Free transportation to the Canal Zone is provided for the appointee, legal dependents, and household goods. Family housing is available. There are good hospitals, schools, and churches under standard American living conditions. A two month vacation with pay (which includes time lost for illness) is allowed, and reduced rates are granted on Panama Line vessels between the Canal Zone and New York. Positions come under Civil Service. Applicants should write to Health Director or Personnel Director, Balboa Heights, Canal Zone.

Society News.—At its annual meeting in Atlantic City, N. J., the Society for Pediatric Research elected Drs. Harold E. Harrison, Baltimore, president; Russell J. Blattner, Houston, Texas, vice-president; Sydney S. Gellis, Boston, secretary-treasurer; and Charles U. Lowe, Buffalo, and C. Henry Kempe, San Francisco, members of the council.——The American Pediatric Society has elected Drs. Rustin McIntosh, New York City, president; Wilburt C. Davison, Durham, N. C., vice-president; Aims C. McGuiness, Philadelphia, secretary-treasurer; Stewart H. Clifford, Brookline, Mass., recorder-editor; and John A. Anderson, Salt Lake City, member of the council (7 years).——At the annual meeting at Jasper National Park, Alberta, Canada, the Pacific Northwest Obstetrical and Gynecological Association elected Drs. William M. Wilson, Portland, Ore., president; John H. Harrison, Vancouver, Wash., president-elect; Richard D. Reekie, Spokane, Wash., vice-president; Earl L. Hall, Great Falls, Mont., secretary; and Verne J. Reynolds, Boise, Idaho, and Albert Trites, Vancouver, B. C., executive members.

Blakeslee Award Contest.—The American Heart Association announces that entries are now being received for the second annual Howard W. Blakeslee award of $1,000 for outstanding scientific reporting in the field of heart and blood vessel diseases. The award will be presented to the person whose creative efforts during 1953 in any medium of mass communication—including newspapers, magazines, radio, television, films, or books—are judged to have contributed most to public understanding of heart and circulatory diseases. Entries will be judged on the basis of (1) accuracy and significance; (2) the skill and originality with which advances in research, and in

the treatment, care, and prevention of cardiovascular disease are translated into educational material of interest and value to the general public; and (3) the ability of the entrant to project a positive and hopeful viewpoint toward problems of the heart and circulation. Material published or produced during the 1953 calendar year is eligible for consideration. Entries must be postmarked not later than Jan. 15, 1954. The winner will be announced at the annual meeting of the American Heart Association, in April, 1954, in Chicago. Entry blanks and additional information may be obtained from the Chairman, Managing Committee, Howard W. Blakeslee Award, American Heart Association, 44 E. 23rd St., New York 10.

Prevalence of Poliomyelitis.—According to the National Office of Vital Statistics, the following number of reported cases of poliomyelitis occurred in the United States, its territories, and possessions in the weeks ended as indicated:

Area	Aug. 1, 1953 Paralytic Type	Aug. 1, 1953 Total Cases Reported	Aug. 2, 1952 Total
New England States			
Maine	11	14	2
New Hampshire	..	15	4
Vermont	1	1	..
Massachusetts	5	21	19
Rhode Island	2	5	3
Connecticut	1	7	16
Middle Atlantic States			
New York	30	134	89
New Jersey	15	29	38
Pennsylvania	..	39	47
East North Central States			
Ohio	29	124	128
Indiana	..	33	41
Illinois	22	99	141
Michigan	26	97	159
Wisconsin	..	21	67
West North Central States			
Minnesota	35	104	113
Iowa	8	27	244
Missouri	12	49	14
North Dakota	6	10	7
South Dakota	..	15	8
Nebraska	8	21	96
Kansas	..	33	83
South Atlantic States			
Delaware	..	..	4
Maryland	15	33	2
District of Columbia	..	4	8
Virginia	13	42	46
West Virginia	14	38	58
North Carolina	19	88	15
South Carolina	4	12	6
Georgia	3	13	16
Florida	3	20	20
East South Central States			
Kentucky	7	18	94
Tennessee	16	53	27
Alabama	12	21	18
Mississippi	..	13	24
West South Central States			
Arkansas	10	12	13
Louisiana	9	25	51
Oklahoma	6	18	59
Texas	15	92	276
Mountain States			
Montana	6	9	10
Idaho	..	3	11
Wyoming	1	2	9
Colorado	5	10	26
New Mexico	..	5	30
Arizona	4	24	13
Utah	..	12	..
Nevada	..	1	6
Pacific States			
Washington	..	10	50
Oregon	1	7	9
California	80	147	86
Territories and Possessions			
Alaska	..	1	1
Hawaii	..	3	4
Puerto Rico	..	..	..
Total	454	1,634	2,311

LATIN AMERICA

Surgeons to Meet in Brazil.—The second congress of the Brazilian section and the first Panamerican congress of the International College of Surgeons will be held in Curitiba, State of Parana, Oct. 5-9. Official themes are "Death During Anesthesia," "Thoracotomy: Indications and Contraindications," and "Surgery of the Biliary Ducts." Correspondence should be addressed to the Brazilian Section of the International College of Surgeons, Rua Cesario Motta, 112—Predio Conde de Lara, São Paulo, Brazil, or International Secretariat, International College of Surgeons, 1516-24 Lake Shore Drive, Chicago 10.

FOREIGN

Ford Foundation Grant to Israel.—The Ford Foundation has made a grant of $410,000 to Israel for the solution of the basic problems of food production, health in the semitropical climate, and the adjustment of immigrants. Medical research problems assigned to the Hebrew University-Hadassah Medical School, Jerusalem, include cures for diarrhea, gastroenteritis, and fungus diseases of the skin and nails as well as means of combating trachoma and schistosomiasis.

World Federation for Mental Health.—The annual meeting of the World Federation for Mental Health will convene at the University of Vienna, Austria, Aug. 16-22. The theme of the meeting is "Social Provision for Mental Health." The seventh annual meeting is to be held in Toronto, Canada, at the same time as the fifth International Congress on Mental Health, Aug. 14-21, 1954. The theme of these meetings will be "Mental Health in Public Affairs." Information may be had from the Secretary, National Association for Mental Health, 39 Queen St., London, W.1, England.

Funds for Expansion of Health Center.—With a five year grant of 35 million francs and $28,000 (approximately $133,000) to the Association d'Hygiène de L'Aisne, the Rockefeller Foundation has renewed its support of the Soissons Public Health Center at Soissons, France. The French Ministry of Public Health and Population, with the aid of WHO and UNICEF and an earlier foundation grant, has established a center at Soissons, about 60 miles east of Paris, to study public health and medical care problems in a limited area and to work for improvements that could be applied to the country as a whole. Plans for expansion of the Soissons program are under way.

Essay Contest.—The Academy of Medicine of Turin announces a competition for the first Saint Vincent Prize for Medical Sciences (7,500,000 lira, approximately $1,200), established to promote scientific research in the medical field. The prize is offered for an essay or a group of essays, printed, dealing with a single subject related to a medical branch and representing noteworthy progress in the knowledge of the investigated matter. Essays must have been published (in Italian, Latin, French, English, Spanish, Portuguese, German, or Russian) after 1950 and must reach the Academy of Medicine in Turin, Via Po, 18, not later than Dec. 31. Five copies, two of which shall remain the property of the academy, with a summary in Italian or French concerning the substance as well as the original and concluding parts of the subject matter, should be sent by registered mail. The winner will be announced at Saint Vincent, Valley of Aosta, in June, 1954, at a meeting sponsored by the academy.

CORRECTIONS

Arterenol in the Treatment of Shock.—In the article by this title in THE JOURNAL, July 25, 1953, page 1200, the first sentence in the last paragraph of the left hand column should read as follows: "Arterenol was given continuously in this series of patients for ½ to 36 hours, without ill effects becoming manifest."

Transfusion of Platelets.—In the editorial on this subject in THE JOURNAL, Aug. 8, 1953, page 1434, the temperature given in the next to last paragraph of the right-hand column should be 5 C instead of 51 C.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1953 Clinical Session, St. Louis, Dec. 1-4.

1954 Annual Session, San Francisco, June 21-25.

1954 Clinical Session, Miami, Florida, Nov. 30-Dec. 3.

1955 Annual Session, Atlantic City, N. J., June 6-10.

1955 Clinical Session, Boston, Nov. 29-Dec. 2.

NATIONAL CONFERENCE ON PHYSICIANS AND SCHOOLS, Moraine-on-the-Lake Hotel, Highland Park, Ill., Sept. 30-Oct. 2. Dr. W. W. Bauer, 535 N. Dearborn St., Chicago 10, Director.

PUBLIC RELATIONS INSTITUTE, Drake Hotel, Chicago, Sept. 2-3. Mr. Leo E. Brown, 535 North Dearborn St., Chicago 10, Director.

AMERICAN ACADEMY OF PEDIATRICS, Municipal Auditorium, Miami, Fla., Oct. 6-9. Dr. E. H. Christopherson, 610 Church St., Evanston, Ill., Secretary.

AMERICAN ASSOCIATION OF MEDICAL CLINICS, Congress Hotel, Chicago, Oct. 9-11. Dr. Edwin P. Jordan, P. O. Box 114, Charlottesville, Va., Executive Director.

AMERICAN ASSOCIATION OF MEDICAL RECORD LIBRARIANS, Palace Hotel, San Francisco, Oct. 5-9. Miss Doris Gleason, 510 N. Dearborn St., Chicago 10, Executive Secretary.

AMERICAN ASSOCIATION OF OBSTETRICIANS, GYNECOLOGISTS AND ABDOMINAL SURGEONS, The Homestead, Hot Springs, Va., Sept. 10-12. Dr. William F. Mengert, 2211 Oak Lawn Ave., Dallas, Texas, Secretary.

AMERICAN ASSOCIATION FOR THE SURGERY OF TRAUMA, Drake Hotel, Chicago, Oct. 1-3. Dr. James K. Stack, 700 North Michigan Blvd., Chicago, Secretary.

AMERICAN COLLEGE OF SURGEONS, Conrad Hilton Hotel, Chicago, Oct. 5-9. Dr. Michael L. Mason, 40 East Erie St., Chicago, Secretary.

AMERICAN CONGRESS OF PHYSICAL MEDICINE, Palmer House, Chicago, Aug. 31-Sept. 4. Dr. Walter J. Zeiter, 30 North Michigan Ave., Chicago 2, Executive Director.

AMERICAN DIETETIC ASSOCIATION, Los Angeles, Aug. 24-28. Miss Ruth M. Yakel, 620 N. Michigan Ave., Chicago 11, Executive Secretary.

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY, Commander and Continental Hotels, Cambridge, Mass., Aug. 17-22. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

AMERICAN HOSPITAL ASSOCIATION, San Francisco, Aug. 31-Sept. 3. Mr. George Bugbee, 18 East Division St., Chicago 11, Executive Director.

AMERICAN MEDICAL WRITERS' ASSOCIATION, Elk's Club, Springfield, Ill., Sept. 23. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

AMERICAN ROENTGEN RAY SOCIETY, Netherland Plaza, Cincinnati, Sept. 29-Oct. 2. Dr. Barton R. Young, Germantown Hospital, Philadelphia 44, Secretary.

AMERICAN SOCIETY OF ANESTHESIOLOGISTS, Olympic Hotel, Seattle, Oct. 6-9. Dr. J. Earl Remlinger Jr., Room 1101, 188 W. Randolph St., Chicago, Secretary.

AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, Fall Meeting, Yale University, New Haven, Conn., Sept. 7-9. Dr. Carl C. Pfeiffer, 1853 West Polk St., Chicago 12, Secretary.

ASSOCIATION OF MEDICAL ILLUSTRATORS, Sheraton Hotel, Baltimore, Oct. 5-7. Miss Evelyn J. Erickson, 1512 St. Antoine St., Detroit 26, Secretary.

BIOLOGICAL PHOTOGRAPHIC ASSOCIATION, Hotel Statler, Los Angeles, Aug. 31-Sept. 3. Miss Jane H. Waters, 533 West 57th St., New York 19, Secretary.

COLORADO STATE MEDICAL SOCIETY, Savoy Hotel, Denver, Sept. 29-Oct. 2. Mr. Harvey T. Stethman, 835 Republic Bldg., Denver 2, Executive Secretary.

DISTRICT OF COLUMBIA, MEDICAL SOCIETY OF THE, Hotel Statler, Washington, Oct. 5-7. Mr. Theodore Wiprud, 1718 M St. N.W., Washington 6, Secretary.

GERONTOLOGICAL SOCIETY, Mark Hopkins Hotel, San Francisco, Aug. 25-27. Dr. Nathan W. Shock, Baltimore City Hospitals, Baltimore 24, Secretary.

GULF COAST CONFERENCE ON INDUSTRIAL HEALTH, Shamrock Hotel, Houston, Tex., Oct. 1-3. Dr. Sidney Schnur, 411 Medical Arts Bldg., Houston 2, Tex., Vice Chairman.

KANSAS CITY SOUTHWEST CLINICAL SOCIETY, Kansas City, Mo., Sept. 28-Oct. 1. Dr. W. H. Algie, 825 North 7th Street, Kansas City, Kans., Secretary.

KENTUCKY STATE MEDICAL ASSOCIATION, Brown Hotel, Louisville, Sept. 22-24. Dr. Bruce Underwood, 620 South Third St., Louisville 2, Secretary.

MICHIGAN STATE MEDICAL SOCIETY, Pantlind Hotel and Civic Auditorium, Grand Rapids, Sept. 23-25. Dr. L. Fernald Foster, 606 Townsend St., Lansing 15, Secretary.

MISSISSIPPI VALLEY MEDICAL SOCIETY, Springfield, Ill., Sept. 23-25. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

MONTANA MEDICAL ASSOCIATION, Northern Hotel, Billings, Sept. 17-20. Mr. L. R. Hegland, 104 North Broadway, Billings, Executive Secretary.

NEUROSURGICAL SOCIETY OF AMERICA, The Broadmoor, Colorado Springs, Colo., Sept. 23-27. Dr. C. D. Hawkes, 22 North Manassas St., Memphis 5, Tenn., Secretary.

NEVADA STATE MEDICAL ASSOCIATION, Carter Hotel, Elko, Sept. 24-26. Dr. William A. O'Brien III, 505 Chestnut St., Reno, Secretary.

NEW HAMPSHIRE MEDICAL SOCIETY, Equinox House, Manchester, Vt., Oct. 4-6. Dr. Deering G. Smith, 44 Chester St., Nashua, Secretary.

NORTHERN MINNESOTA MEDICAL ASSOCIATION, Fergus Falls, Aug. 28-29. Dr. C. L. Oppegaard, Crookston, Secretary.

NORTH PACIFIC SOCIETY OF INTERNAL MEDICINE, Harrison, B. C., Sept. 18-19. Dr. Clarence C. Pearson, 1115 Terry Ave., Seattle 1, Wash., Secretary.

NORTH TEXAS-SOUTHERN OKLAHOMA FALL CLINICAL CONFERENCE, Wichita Falls, Texas, Sept. 16. Dr. C. H. Wilson, 1300 Eighth St., Wichita Falls, Texas, Secretary.

PENNSYLVANIA, MEDICAL SOCIETY OF THE STATE OF, William Penn Hotel, Pittsburgh, Sept. 21-24. Dr. Harold B. Gardner, 230 State St., Harrisburg, Secretary.

REGIONAL MEETINGS, AMERICAN COLLEGE OF PHYSICIANS:

NORTH DAKOTA, Fargo, Sept. 12. Dr. Robert B. Radl, 221 Fifth St., Bismarck, Governor.

ARKANSAS-OKLAHOMA, Tulsa, Okla., Sept. 19. Dr. Wann Langston, 117 North Broadway, Oklahoma City 2, Governor.

WESTERN NEW YORK, Syracuse, Oct. 9. Dr. E. C. Reifenstein, 109 South Warren St., Syracuse 2, Governor.

OHIO, Dayton, Oct. 9. Dr. Charles A. Doan, Ohio State University College of Medicine, Columbus 10, Governor.

MONTANA-WYOMING, Missoula, Mont., Oct. 9-10. Dr. Harold W. Gregg, 127 West Park Street, Butte, Mont., Governor.

SOUTHWESTERN SURGICAL CONGRESS, Hotel Utah, Salt Lake City, Sept. 21-23. Dr. C. R. Rountree, 1227 Classen St., Oklahoma City 3, Secretary.

TENNESSEE VALLEY MEDICAL ASSEMBLY, Read House Hotel, Chattanooga, Sept. 28-29. Dr. William G. Stephenson, 612 Medical Arts Bldg., Chattanooga 3, President.

U. S. CHAPTER, INTERNATIONAL COLLEGE OF SURGEONS, Waldorf-Astoria, New York, Sept. 13-17. Dr. Karl Meyer, 1516 Lake Shore Drive, Chicago 10, Secretary.

UTAH STATE MEDICAL ASSOCIATION, Salt Lake City, Sept. 10-12. Dr. Homer E. Smith, 42 South Fifth East St., Salt Lake City 2, Secretary.

VERMONT STATE MEDICAL SOCIETY, Equinox House, Manchester, Oct. 4-6. Dr. James P. Hammond, 542 Main St., Bennington, Secretary.

WASHINGTON STATE MEDICAL ASSOCIATION, Olympic Hotel, Seattle, Sept. 13-16. Dr. Bruce Zimmerman, 338 White-Henry-Stuart Bldg., Seattle 1, Secretary.

WESTERN ORTHOPEDIC ASSOCIATION, Sun Valley, Idaho, Oct. 5-8. Dr. Forrest L. Flashman, 1301 Spring St., Seattle 4, Secretary.

WISCONSIN, STATE MEDICAL SOCIETY OF, Hotel Schroeder, Milwaukee, Oct. 5-7. Mr. Charles H. Crownhart, 704 East Gorham St., Madison 3, Secretary.

FOREIGN

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND, Leeds, England, May 13-15, 1954. Dr. Henry W. S. Wright, 45 Lincoln's Inn Fields, London W.C.2, England, Honorary Secretary.

CANADIAN MEDICAL ASSOCIATION, Vancouver, B. C., Canada, June 18-22, 1954. Dr. T. C. Routley, 135 St. Clair Ave. W., Toronto 5, Ont., Canada, General Secretary.

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Chateau Frontenac, Quebec, Canada, October 26-29. Dr. A. William Friend, 515 Nome Ave., Akron 20, Ohio, Chairman, Program Committee.

CONGRESS OF THE INTERNATIONAL ASSOCIATION OF LIMNOLOGY, Cambridge and Windermere, England, Aug. 20-30. For information write: Professor G. C. Hutchinson, Osborn Zoological Laboratory, Yale University, New Haven, Conn., U. S. A.

CONGRESS OF THE INTERNATIONAL LEAGUE AGAINST RHEUMATISM, Geneva, Switzerland and Aix-les-Bains, France, Aug. 23-29. For information write: Dr. W. Tegner, The London Hospital, London E.1, England.

CONGRESS OF THE INTERNATIONAL SOCIETY OF ANGIOLOGY, Lisbon, Portugal, Sept. 18-20. Dr. Henry Haimovici, 105 East 90th St., New York 28, N. Y., U. S. A., Secretary.

CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY, Lisbon, Portugal, Sept. 14-20. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

INTERIM MEETING, AERO MEDICAL ASSOCIATION, University of Brussels Medical School, Brussels, Belgium, Sept. 24-27. Dr. Andre Allard, Medical Director of SABENA, 145 Rue Royale, Brussels, Belgium, Secretary.

INTERNATIONAL CANCER CONGRESS, Sao Paulo, Brazil, July 23-29, 1954. Prof. A. Prudente, 171 rua Benjamin Constante, Sao Paulo, Brazil, President.

INTERNATIONAL CONFERENCE ON THROMBOSIS AND EMBOLISM, Basle, Switzerland, July 15-19, 1954. Dr. W. Merz, Chief Medical Officer, Gynecological Clinic, University of Basle, Basle, Switzerland, Hon. Secretary.

INTERNATIONAL CONGRESS OF ACUPUNCTURE, Kolpinghaus, Adolf-Kolping-Strasse 1, Munich, Germany, August 22-25. Dr. G. Bachmann, 29 Lilienstrasse, München 9, Germany, Organizer and Secretary.

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY, Boston, Mass., U. S. A., Aug. 18-21. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Mass., U. S. A., Secretary-General.

INTERNATIONAL CONGRESS OF THE EUROPEAN SOCIETY OF HAEMATOLOGY, Amsterdam, Holland, Sept. 8-12. Dr. M. C. Verloop, Maliesingle 15, Utrecht, Holland, Secretary.

INTERNATIONAL CONGRESS ON GENETICS, Bellagio, Italy, August 24-31. Prof. C. Barigozzi, Instituto de Genetica, Universita de Milano, 10 via Celoria, Milan, Italy, Secretary.

INTERNATIONAL CONGRESS OF HIPPOCRATIC MEDICINE, Evian, France, Sept. 3-6. Prof. P. Delore, 13, rue Jarente, Lyon, France, Secretary-General.

INTERNATIONAL CONGRESS OF HYDROCLIMATISM AND THALASSOTHERAPY, Dubrovnik, Yugoslavia, May 8-16, 1954. Prof. C. Plavsic, Zeleni Venac 1, Belgrade, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, Sao Paulo, Brazil, April 26-May 2, 1954. Dr. Max Thorek, 1516 Lake Shore Drive, Chicago, Illinois, U.S.A., Secretary-General.

INTERNATIONAL CONGRESS OF LOGOPEDICS AND PHONIATRICS, Zurich, Switzerland, Sept. 1-5. Dr. Deso A. Weiss, 115 East 86th St., New York 28, N. Y., U. S. A., General Secretary.

INTERNATIONAL CONGRESS ON MENTAL HEALTH, University of Toronto, Toronto, Ontario, Canada, Aug. 14-21, 1954. For information write: Executive Officer, International Congress on Mental Health, 111 St. George St., Toronto, Ontario, Canada.

INTERNATIONAL CONGRESS OF MICROBIOLOGY, Rome, Italy, Sept 6-12. For information write: Dr. V. Puntoni, Citta Universitaria, Rome, Italy.

INTERNATIONAL CONGRESS ON OBSTETRICS AND GYNECOLOGY, Geneva, Switzerland, July 26-31, 1954. Dr. H. de Watteville, Maternité Hôpital Cantonal, Geneva, Switzerland, President.

INTERNATIONAL CONGRESS OF PAEDIATRICS, Havana, Cuba, Oct. 12-17. Prof. Felix Hurtado, 5a Avenue 124, Miramar, Havana, Cuba, President.

INTERNATIONAL CONGRESS OF PSYCHOLOGY, Montreal, Canada, June 7-12, 1954. For information write: Prof. H. S. Langfeld, International Union of Scientific Psychology, Eno Hall, Princeton University, Princeton, N. J., U. S. A.

INTERNATIONAL CONGRESS FOR PSYCHOTHERAPY, Zurich, Switzerland, July 21-24, 1954. Dr. H. K. Fierz, Theaterstrasse 12, Zurich 1, Switzerland, Secretary General.

INTERNATIONAL CONGRESSES OF TROPICAL MEDICINE AND MALARIA, Istanbul, Turkey, Aug. 28-Sept. 4. Professor Dr. Ihsan Sükrü Aksel, Tunel Meydam, Beyoglu, Istanbul, Turkey, General Secretary.

INTERNATIONAL GERONTOLOGICAL CONGRESS, London and Oxford, England, July 12-22, 1954. Prof. R. E. Tunbridge, General Infirmary, Department of Medicine, The University, Leeds, England, President.

INTERNATIONAL LEPROSY CONGRESS, Madrid, Spain, Oct. 3-10. Dr. Felix Contreras, Moreto 15, Madrid, Spain, Secretary.

INTERNATIONAL NEUROLOGICAL CONGRESS, LISBON, Portugal, Sept. 7-12. Prof. Almeida Lima, Avenida do Brazil 53, Lisbon, Portugal, Secretary-General.

INTERNATIONAL OFFICE OF DOCUMENTATION OF MILITARY MEDICINE, Rome, Italy, Oct. 14-18. Colonel Medecin Prof. A. Campana, Office of the Ministero della Difesa-Esercito, Rome, Italy, Secretary.

INTERNATIONAL PHYSIOLOGICAL CONGRESS, Montreal, Canada, Aug. 31-Sept. 4. Dr. A. S. V. Burgen, Dept. of Physiology, McGill University, Montreal, Canada, Secretary.

INTERNATIONAL SOCIETY FOR THE STUDY OF BIOLOGICAL RHYTHMS, Basle, Switzerland, Sept. 18-19. For information write: Prof. Dr. F. Georgi, Neurologische Universitats-Poliklinik, Socinstrasse 55, Basle, Switzerland.

JOURNEES MEDICALES, Paris, France, April 21-25, 1954. For information write: Secretariat of the Journees, 12, rue Pierre-Geofroix, Colombes (Seine) France.

LATIN AMERICAN CONGRESS OF OBSTETRICS AND GYNECOLOGY, Buenos Aires, Argentina, Oct. 26-31.

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY, Caracas, Venezuela, Feb. 21-25, 1954. Dr. Victorino Marquez Reveron, Centro Medico, Caracas, Venezuela, Secretary-General.

PACIFIC SCIENCE CONGRESS, Quezon City and Manila, Philippines, Nov. 16-28. Dr. Patrocinio Valenzuela, College of Pharmacy, University of the Philippines, Quezon City, Philippines, Secretary-General.

PAN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHOESOPHAGOLOGY, Mexico, D.F., Mexico, Feb. 28-March 4, 1954.

PAN AMERICAN MEDICAL ASSOCIATION, International Medical Cruise Congress, S. S. Nieuw Amsterdam, Jan. 6-22, 1954. Dr. Joseph J. Eller, 745 Fifth Avenue, New York 22, N. Y., U. S. A., Executive Director.

PAN AMERICAN MEDICAL WOMEN'S ALLIANCE, Beekman Towers Hotel, New York, N. Y., Sept. 24-Oct. 1. Dr. Ina Marsh, 140 Linwood Ave., Buffalo, N. Y., U. S. A., Registration Chairman.

PERSIAN GULF MEDICAL SOCIETY, Dhahran, Saudi Arabia, Dec. 7-8. Dr. N. J. Conan Jr., Department of Internal Medicine, Arabian American Oil Company, Dhahran, Saudi Arabia, Secretary.

REGIONAL MEETING, AMERICAN COLLEGE OF PHYSICIANS, San Juan, Puerto Rico, Oct. 15-17. Dr. R. Rodriquez-Molina, Veterans Administration Center, San Juan, Puerto Rico, Governor.

SECTIONAL MEETING, AMERICAN COLLEGE OF SURGEONS, London, England, May 17-19, 1954. Dr. Michael L. Mason, 40 East Erie St., Chicago 11, Ill., U. S. A., Secretary.

WORLD CONFERENCE ON MEDICAL EDUCATION, British Medical Association House Tavistock Square, W.C.1, London, England, Aug. 22-29. Secretariat: World Medical Association, 2 East 103d St., New York 29, N. Y., U. S. A.

WORLD CONGRESS OF THE WORLD CONFEDERATION FOR PHYSICAL THERAPY, London, England, Sept. 7-12. Miss M. J. Neilson, Chartered Society of Physiotherapy, Tavistock House, South, Tavistock Square, London, W.C.1, England, Secretary.

WORLD FEDERATION FOR MENTAL HEALTH, Vienna, Austria, Aug. 17-23. For information write: Miss E. M. Thornton, 19 Manchester St., London, W.1, England.

WORLD MEDICAL ASSOCIATION, The Hague, Netherlands, Aug. 31-Sept. 7. Dr. Louis H. Bauer, 345 East 46th St., New York 17, N. Y., Secretary-General.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* All centers where there are five or more candidates. Sept. 8-10 (Part I only). Candidates may file applications at any time, but the National Board must receive them at least six weeks before the date of the examination they wish to take. Exec. Sec., Dr. John P. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: All candidates must now pass a written examination. *Written.* Various centers, Sept. 3. *Oral.* Philadelphia, Oct. 16-18. To be eligible, candidate must complete 36 months of training before Oct. 1. Final date for filing applications was May 1. Exec. Sec., Miss Janet Newkirk, 66 East 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* San Francisco, Sept. 30-Oct. 2, Chicago, Nov. 30-Dec. 2. The closing date for acceptance of applications for the San Francisco and Chicago oral examination was April 1. *Written.* October 19. The closing date for acceptance of applications was May 1. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main St., Madison 3.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* New Haven, October. Final date for filing application was July 1, Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, Kingshighway and Euclid Ave., St. Louis.

AMERICAN BOARD OF NEUROLOGY AND PSYCHIATRY: *Psychiatry and Neurology.* Dec. 14-15. Applications no longer being accepted Chicago, April 29-30. Final date for filing application is Feb. 1. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written.* Various cities of the United States and Canada, Feb. 5. Application for examination or re-examination, as well as requests for resubmission of case reports, must be made prior to October 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: Chicago, Oct. 5-9. *Written.* Various Centers, January 1954. Final date for filing applications was July 1. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Chicago, January 1954. Final date for filing application is August 15. Sec., Dr. Harold A. Sofield, 122 S. Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 5-9. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: *Written. Pathologic Anatomy and Clinical Pathology.* Chicago, Oct. 8-10. Sec., Dr. William B. Wartman, 303 E. Chicago Ave., Chicago.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Miami, Oct. 9-11; Indianapolis, Dec. 4-6. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PLASTIC SURGERY: *Entire Examination.* San Diego, Oct. 29-31. Final date for receipt of case reports was June 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PROCTOLOGY: *Part II. Oral and Written. Anorectal Surgery and Proctology.* Philadelphia, Sept. 19. Sec., Dr. Louis A. Buie, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral. Radiology, Roentgenology, Diagnostic Roentgenology and Therapeutic Radiology.* Chicago, Dec. 6-11. Final date for filing application was July 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

BOARD OF THORACIC SURGERY: *Written.* Various centers throughout the country, September 11. Final date for filing application was July 1. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

DEATHS

Henderson, Elmer Lee ⊕ Louisville, Ky., President of the American Medical Association, 1950-1951, and from June, 1947, to June, 1949, chairman of the Board of Trustees, died July 30, aged 68, of carcinoma of the prostate. Dr. Henderson was born in Garnettsville, Ky., March 23, 1885. In 1909 he received the degree of doctor of medicine from the University of Louisville Medical Department, where for many years he was a member of the faculty and where he served as a member of the board of overseers. Since 1911 Dr. Henderson had practiced general surgery in Louisville. In World War I he was a major in the U. S. Army Medical Corps, serving nine months overseas. He was later commissioned a lieutenant colonel in the Medical Reserve Corps. In World War II he was chairman of the Fifth Service Command Committee, Procurement and Assignment Service for Physicians, Dentists, and Veterinarians. Since 1943 he had been a surgical consultant to the Air Surgeon's Office, U. S. Army. In 1948 he was a member of a mission to Japan to survey and make recommendations on social security, medical education, and medical service. In his long service in organized medicine, Dr. Henderson was a member of the House of Delegates of the American Medical Association from 1937 to 1939, and was elected a member of the Board of Trustees in 1939. He was elected vice-chairman of the Board in December, 1945. He served as chairman of the Board's executive committee for two years, and then was elected chairman of the Board. He gave up that office in 1949 when, by unanimous vote of the House of Delegates, he was made President-Elect. He served as president of the World Medical Association, chairman of its United States committee, and at the time of his death was a member of the council. Dr. Henderson was a past president of the Kentucky State Medical Association, of the Jefferson County Medical Society, of the Southeastern Surgical Congress, of the Southern Medical Association, and of the Alumni Association of the University of Louisville. He was one of the founders of the American Board of Surgery, a fellow of the Società Piemontese di Chirurgia, and the Japanese Medical Association, honorary member of the International College of Surgeons, and a member of the board of trustees of the National Society for Crippled Children and Adults. He was a member of the board of governors and consultant in surgery at the Kosair Crippled Children Hospital, consultant on the staff at SS Mary and Elizabeth Hospital, and on the surgical staff of Kentucky Baptist Hospital and St. Joseph Infirmary.

ELMER LEE HENDERSON, M.D., 1885-1953

Mann, William Leake ⊕ Rear Admiral, U. S. Navy, retired, Arlington, Va.; born in Georgetown, Texas, July 26, 1884; Harvard Medical School, Boston, 1908; graduate of Naval Medical School, Naval War College, the Army Field Service School at Carlisle Barracks, Pa., and the Navy's School of Aviation Medicine; in October, 1908, was appointed assistant surgeon with the rank of lieutenant (jg) in the medical corps of the Navy; advanced through the various ranks to that of rear admiral which he attained in July, 1943; served at Navy medical department facilities throughout the United States, in China, in the Philippine Islands, and in Haiti; his tours of sea duty included assignments aboard the USS Tennessee, the USS Hannibal, the USS Cincinnati, and the aircraft carrier, the USS Saratoga; a veteran of World Wars I and II, was credited with the development of medical companies and was instrumental in getting them written into the table of organization of the marine corps; from 1940 to 1942 was medical officer in command of the Naval Hospital, Corpus Christi, Texas, and following this assignment became the first commanding officer of the Naval Medical Research Institute, Bethesda, Md.; following his advancement to the rank of rear admiral in 1943, became district medical officer of the 13th naval district with headquarters at Seattle, Wash.; was placed on the retired list of the Navy, Nov. 1, 1945, after more than 37 years of continuous active naval service; fellow of the American College of Surgeons; in 1943 president of the Association of Military Surgeons of the United States; delegate to the International Congress of Military Medicine, Bucharest, Rumania, 1937; was awarded a special letter of commendation by the Navy Department for service in World War I, World War I medal, Medal Militaire (Haiti), and Haitian Campaign medal; died June 12, aged 69, of adenocarcinoma of the stomach.

Rudolph, Myron Parkhill ⊕ Col. U. S. Army, retired, Raleigh, N. C.; born in Punxsutawney, Pa., Jan. 28, 1889; Hahnemann Medical College and Hospital of Philadelphia, 1915; received the degree of doctor of public health from Johns Hopkins University, Baltimore, 1937; commissioned a first lieutenant in the medical corps of the Army in 1917; subsequently served in all commissioned ranks of the regular Army and was promoted to the rank of colonel in 1942; during World War I served with the Sixth Infantry and was decorated for gallantry in action; during World War II served in North Africa and as surgeon of the U. S. Seventh Army in Europe; following the war, served as chief of preventive medicine in Germany and as surgeon for the Third Army, Fort McPherson, Ga., until his retirement in January, 1949; during his military career, was awarded the Silver Star, the Distinguished Service Medal, the Legion of Merit, the Bronze Star Medal, and the Purple Heart; received the French Croix de Guerre from the French government; awarded the United States of America Typhus Commission Medal; specialist certified by the American Board of Public Health; member of the American Public Health Association; chief of the maternal child health clinic and crippled children's section of the North Carolina State Board of Health; died June 30, aged 64, of coronary sclerosis and myocardial infarction.

⊕ Indicates Member of the American Medical Association.

Kolb, Edwin Paul ✠ Patchogue, N. Y.; born in Frostburg, Md., July 8, 1883; University of Maryland School of Medicine, Baltimore, 1912; from 1926 to 1951 secretary of the Suffolk County Medical Society, of which he was president; past president of the Associated Physicians of Long Island and the South Side Clinical Society; specialist certified by the American Board of Internal Medicine; member of the American College of Chest Physicians; fellow of the American College of Physicians; served during World Wars I and II; consultant, Central Island (N. Y.) State Hospital, Kings Park State Hospital in Kings Park, Pilgrim State Hospital in Brentwood, Southampton (N. Y.) Hospital, South Side Hospital in Bay Shore, and John T. Mather Memorial Hospital in Port Jefferson; retired April 30, 1949, after 33 years as superintendent of the Suffolk Sanatorium in Holtsville; director of the Peoples National Bank; died June 14, aged 69, of coronary occlusion.

Oliver, Everard Lawrence ✠ St. Petersburg, Fla.; born in 1876; Harvard Medical School, Boston, 1904; formerly practiced in Boston, where he was clinical professor of dermatology and syphilology emeritus at his alma mater; an Associate Fellow of the American Medical Association; member of the Massachusetts Medical Society and the American Dermatological Association, of which he was vice-president, 1936-1937; past president of the New England Dermatological Society; specialist certified by the American Board of Dermatology and Syphilology; consultant in dermatology at the Benjamin Stickney Cable Memorial Hospital in Ipswich, Boston Lying-In Hospital, Children's Medical Center in Boston, Elliot Community Hospital in Keene, N. H., Massachusetts Eye and Ear Infirmary, and Long Island Hospital in Boston; honorary physician at the Massachusetts General Hospital in Boston, where he died June 12, aged 77.

Pusey, Brown ✠ Chicago; born in Elizabethtown, Ky., Dec. 14, 1869; University of Pennsylvania Department of Medicine, Philadelphia, 1892; in 1893 was appointed assistant surgeon in the U. S. Navy, in which service he remained until July 1, 1896; studied in Germany and Vienna 1898-1899, and in Freiburg and Vienna in 1904; professor emeritus of ophthalmology at Northwestern University Medical School, where from 1908 to 1927 he was professor; at one time assistant professor of ophthalmology at Rush Medical College and instructor of pathology of the eye at the University of Chicago; an Associate Fellow of the American Medical Association; member of the American Ophthalmological Society; fellow of the Institute of Medicine of Chicago; served during World War I; on the staff of Cook County Hospital from 1905 to 1910; died in St. Luke's Hospital July 4, aged 83, of arteriosclerotic heart disease.

Rassieur, Louis ✠ Kirkwood, Mo.; born in St. Louis Dec. 21, 1876; Marion-Sims College of Medicine, St. Louis, 1899; professor of surgery at St. Louis University School of Medicine; member of the founders group of the American Board of Surgery; an Associate Fellow of the American Medical Association; member of the Western Surgical Association; fellow of the American College of Surgeons; junior intern, St. Louis City Hospital, 1899-1900, senior intern, 1900-1901, assistant superintendent, 1901-1903, and surgeon, 1910-1914; surgeon, Mt. St. Rose Hospital, 1908-1909, Lutheran Hospital, 1908-1909, and St. Mary's Infirmary, 1909-1924, where he was on the advisory staff 1940-1946; neurological surgeon, St. Louis City Sanitarium since 1914; surgeon, St. Mary's Group of Hospitals, 1924-1940, and acting surgeon in chief 1940-1946; died in St. Mary's Hospital May 28, aged 76, of cerebral thrombosis, myocardial infarction, and coronary sclerosis.

Jones, Ira Fulton ✠ Fort Smith, Ark.; born in Hernando, Miss., Sept. 21, 1899; University of Pennsylvania School of Medicine, Philadelphia, 1922; assistant professor of obstetrics and gynecology at the University of Arkansas School of Medicine in Little Rock; fellow of the American College of Surgeons; past president of the Sebastian County Medical Society; formerly vice-president of the Arkansas Medical Society; affiliated with Sparks' Memorial and St. Edward's Mercy hospitals; died in the Harkness Pavilion of Presbyterian Hospital in New York March 30, aged 53, of bleeding esophageal varices and Laennec's cirrhosis of the liver.

Last, Murray A. ✠ New York City; University and Bellevue Hospital Medical College, New York, 1927; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology and the Association for Research in Ophthalmology; fellow of the American College of Surgeons; ophthalmic surgeon at the Manhattan Eye, Ear and Throat Hospital; ophthalmologist at Midtown Hospital; consulting ophthalmologist at the Lexington School for the Deaf; served as chief of the eye clinic at Mount Sinai Hospital; died June 25, aged 52, of coronary thrombosis.

Adams, Glenn, Cincinnati; Pulte Medical College, Homeopathic, Cincinnati, 1904; member of the Industrial Medical Association; died in Bethesda Hospital June 21, aged 70, of ruptured aneurysm of the abdominal aorta.

Bill, Jose Penteado ✠ Boston; Harvard Medical School, Boston, 1916; member of the American Public Health Association; assistant professor of public health and preventive medicine at Boston University School of Medicine; died June 8, aged 69.

Brace, Robert Walter, Oakland, Calif.; Jefferson Medical College of Philadelphia, 1900; for many years affiliated with the Veterans Administration hospitals in various parts of the country; served during World War I; died June 12, aged 77, of bronchopneumonia and carcinoma of the prostate.

Flitcroft, William ✠ Waukesha, Wis.; Columbia University College of Physicians and Surgeons, New York, 1890; an Associate Fellow of the American Medical Association; member of the Medical Society of New Jersey; past president of the Passaic County (N. J.) Medical Society; formerly practiced in Paterson, N. J., where he was affiliated with Paterson General Hospital; died in Waukesha Memorial Hospital recently, aged 91, of cerebral hemorrhage and hypertension.

Fort, Mannie Almanza ✠ Bainbridge, Ga.; Tulane University of Louisiana School of Medicine, New Orleans, 1903; died May 9, aged 80, of ileus.

Goodrich, Benjamin Elmer ✠ Detroit; State University of Iowa College of Medicine, Iowa City, 1926; specialist certified by the American Board of Internal Medicine; member of the Central Society for Clinical Research, American College of Chest Physicians (as well as past president of the Michigan Chapter), and the American Trudeau Society; fellow of the American College of Physicians; served during World War I and World War II; affiliated with Henry Ford Hospital; died in Pleasant Ridge, Mich., June 15, aged 53, of coronary occlusion.

Guenther, Edward George, Burlington, Iowa; Hospital College of Medicine, Louisville, Ky., 1898; died April 14, aged 77, of acute coronary thrombosis and hypertensive cardiovascular disease.

Hansen, Elmer Harry, Long Beach, Calif.; Tulane University of Louisiana School of Medicine, New Orleans, 1918; died in Veterans Administration Hospital June 16, aged 63, of carcinoma.

Hughes, Michael Edward ✠ Lieut. Col., U. S. Army, retired, Los Angeles; Bellevue Hospital Medical College, New York, 1893; served in the Spanish-American War and World War I; died June 1, aged 83.

Jones, Daniel Dailey ✠ Berne, Ind.; Northwestern University School of Medicine, Chicago, 1909; served during World War I; formerly health officer; died June 11, aged 82, of cerebral thrombosis and arteriosclerosis.

Jessup, Horace Sihler ✠ Sequim, Wash.; McGill University Faculty of Medicine, Montreal, Canada, 1923; served during World War II; died April 3, aged 52, of multiple sclerosis.

Keene, Walter Bullock, Philadelphia; Jefferson Medical College of Philadelphia, 1891; died June 11, aged 85.

Kline, Philip, Tulsa, Okla.; University of Nebraska College of Medicine, Omaha, 1919; served during World War I; at one time president of the alumni association of the University of Nebraska; for a long time official physician for Northeast Oklahoma Golden Gloves tournament and all dual boxing matches; died June 16, aged 62, of coronary occlusion.

Knepp, James Warren ✠ Manchester, N. H.; University College of Medicine, Richmond, 1905; a captain in the medical corps of the Army during the Mexican border campaign in 1916; served during World Wars I and II; affiliated with the Veterans Administration; died in Newtown, Conn., June 11, aged 72.

Koop, Severin Herman ✠ Richmond, Minn.; University of Minnesota Medical School, Minneapolis, 1927; member of the American Academy of General Practice; superintendent of the Richmond Hospital; died in Minneapolis recently, aged 54, of coronary occlusion.

Kratzer, Eugene Ferdinand ✠ Kokomo, Ind.; Medical College of Indiana, Indianapolis, 1903; also a graduate in pharmacy; died in Robert Long Hospital, Indianapolis, June 1, aged 76, of bronchogenic carcinoma.

Law, Charles Royce ✠ Coolidge, Ariz.; Rush Medical College, Chicago, 1938; served during World War II; died June 5, aged 43, of a heart attack.

McCarthy, Edward, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1900; served during World War I; died June 10, aged 75, of myocarditis.

McKinnon, Daniel Angus ✠ Marianna, Fla.; Medical Department of Tulane University of Louisiana, New Orleans, 1906; died in Albuquerque, N. Mex., March 17, aged 75, of diverticulitis.

Manning, Ernest Tibbetts ✠ Omaha; Rush Medical College, Chicago, 1904; specialist certified by the American Board of Pathology; member of the College of American Pathologists and the American Society of Clinical Pathologists; at one time on the faculty of the University of Nebraska College of Medicine; served as vice-president and later as chairman of the state board of medical examiners; formerly health commissioner; died June 5, aged 75, of cerebral hemorrhage.

Martin, George Clark ✠ Indiana, Pa.; Temple University School of Medicine, Philadelphia, 1928; fellow of the American College of Surgeons; past president of the Indiana County Medical Society; served during World Wars I and II; member and past president of staff of Indiana County Memorial Hospital; died April 25, aged 53, of cerebral thrombosis.

Martin, Henry Sleeper ✠ Warsaw, N. Y.; Jefferson Medical College of Philadelphia, 1919; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; past president of the Eighth District Medical Society; chief of staff emeritus at the Wyoming County Community Hospital; died June 11, aged 62, of cerebral hemorrhage.

Martin, John Letton, Washington, D. C.; University and Bellevue Hospital Medical College, New York, 1899; died June 15, aged 74, of acute congestive heart failure.

Martt, Sherman Guthrie, Pomeroy, Ohio; University of Louisville (Ky.) Medical Department, 1894; died June 18, aged 83, of a heart attack.

Morgan, Isaiah C. ✠ Nanticoke, Pa.; Jefferson Medical College of Philadelphia, 1915; served during World War I; formerly county coroner; affiliated with Nanticoke State Hospital; served as chief medical examiner of the Veterans Administration in Wilkes-Barre regional office; president of the radio station WILK; died in Nuangola, Pa., April 26, aged 60, of coronary thrombosis.

Mueller, James Alexius ✠ Lewistown, Mont.; State University of Iowa College of Medicine, Iowa City, 1932; member of the American Academy of General Practice; county physician; on the staff of St. Joseph's Hospital; died in Fenton, Iowa, May 30, aged 52, of injuries received in an airplane crash.

Nelson, Richard Buzzard ✠ Hammond, Ind.; Indiana University School of Medicine, Indianapolis, 1933; also a graduate in pharmacy; member of the Association of Military Surgeons of the United States; served during World War II; affiliated with St. Margaret's Hospital, where he died June 9, aged 44, of coronary thrombosis.

Nichols, Robert Columbus ✠ Ontario, Calif.; Northwestern University Medical School, Chicago, 1911; died March 29, aged 73, of coronary artery disease.

Nissler, Christian William ✠ Lansdowne, Pa.; Jefferson Medical College of Philadelphia, 1919; member of the American College of Chest Physicians and the American Trudeau Society; for many years on the faculty of his alma mater; formerly medical director of White Haven (Pa.) Sanatorium; died May 31, aged 64, of coronary occlusion.

Norment, Richard Baxter Jr. ✠ Hagerstown, Md.; University of Maryland School of Medicine, Baltimore, 1914; formerly associated with the U. S. Public Health Service; died in Washington County Hospital April 6, aged 61.

Noyes, William Bradbury, New York City; Columbia University College of Physicians and Surgeons, New York, 1891; served on the staffs of the Mountainside Hospital in Montclair, N. J., and the Columbus Hospital; died in St. Luke's Hospital June 20, aged 87, of arteriosclerosis.

O'Connor, Andrew Francis ✠ Reno, Nev.; Loyola University School of Medicine, Chicago, 1923; member of the California Medical Association; died in the Veterans Administration Center June 23, aged 62, of gastrointestinal hemorrhage, esophageal varices, and Laennec's cirrhosis.

Parker, Joseph Garrison, New York City; Columbia University College of Physicians and Surgeons, 1948; senior assistant surgeon in the U. S. Public Health Service Reserve, serving in Cincinnati when he became ill; certified by the National Board of Medical Examiners; served an internship in internal medicine at the Duke Hospital in Durham, N. C.; interned and served a fellowship in pathology and a residency in internal medicine at the Mount Sinai Hospital, where he died June 21, aged 29.

Pedigo, William Sherman ✠ Strawn, Texas; University of Nashville (Tenn.) Medical Department, 1894; Vanderbilt University School of Medicine, Nashville, Tenn., 1894; served during World War I; past president of the Palo-Pinto-Parker Counties Medical Society; member of the Texas Association of Railway Surgeons; for many years city health officer; founder and part owner of the Strawn Hospital; surgeon for the Texas and Pacific Railway Company; died March 7, aged 82, of carcinoma of the sigmoid.

Riffle, Raymond Ernest, Indianapolis; Indiana University School of Medicine, Indianapolis, 1911; died May 24, aged 66, of coronary occlusion and diabetes mellitus.

Robberson, Marvin Early ✠ Wynnewood, Okla.; University of Louisville (Ky.) Medical Department, 1905; formerly medical director and part owner of the Wynnewood Hospital; died June 7, aged 73, of cerebral hemorrhage.

Roby, Robert Sharman, Jackson, Miss. (licensed in Mississippi in 1907); died June 19, aged 67.

Rooney, John Francis, Boston; College of Physicians and Surgeons, Boston, 1921; for many years police surgeon; died in Dorchester, Mass., April 5, aged 71, of coronary thrombosis.

Shamanky, Harry Solomon ✠ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1917; served during World War II; died May 16, aged 58.

White, William Henry Clay ✠ Elizabeth City, N. C.; University of Virginia Department of Medicine, Charlottesville, 1922; served as county coroner; died in the Albemarle Hospital May 31, aged 55, of a cerebral vascular accident and hypertension.

Wunderlich, Edwin B. ✠ Chicago; Dearborn Medical College, Chicago, 1906; died in the Lutheran Deaconess Hospital July 3, aged 76, of arteriosclerotic heart disease.

FOREIGN LETTERS

LONDON

Preschool Child Mortality.—A review of one of the more neglected aspects of pediatrics, mortality in children aged 1 to 5 years, has recently been published from the Child Welfare Department, Edinburgh (*Edinburgh M. J.* **60**:212, 1953). It is based on a study of child deaths in Edinburgh from 1901 to 1951. In 1901 the total number of deaths in this age group was 777; in 1951 it was 45, in spite of the fact that during this half century there was an increase in the population aged 1 to 5 years. The main causes of death in 1901 were as follows (the corresponding figure for 1951 is given in parentheses): measles 111 (0), whooping cough 175 (2), tuberculosis 123 (5), and bronchitis and pneumonia 130 (5). In 1951, in this age group, there were no deaths from measles, scarlet fever, or diphtheria, and only one from "diarrhoeal diseases." In view of the reputation that Edinburgh had in the earlier years of the century for the high incidence of bovine infection (in 1904, for instance, there were 2,974 cows kept by dairymen within the city, and 39 of them were removed by the city veterinary officer because of infection with tuberculosis), it is interesting to note that "the problems of prevention and control of tuberculosis is now mainly, if not entirely, that of the human type infection." The comments of the authors of this report on the present position of BCG vaccination in this country are worthy of note: "The introduction of B.C.G. vaccination in 1950 was approved nationally, but official restrictions were imposed on its general application and it can only be used for special groups of the population. Unless and until it can be made available as a routine prophylactic measure in the early days of life and steps taken to maintain the immunity thus produced, little can be expected from the restricted use of the vaccine."

The only cause of death that has not shown a satisfactory decrease is death from accidents: in 1901 there were 22 such deaths, and in 1951 there were 13. "In 1901-09 the ratio of fatal accidents occurring at home to those occurring without the home was 9:5, while in 1950-51 the corresponding ratio was 3:8. Deaths from accidental and violent causes during the first decade of the century accounted for 2.8 per cent. of the total deaths among 1-5 year olds, and during the period 1942-51 such deaths represented 14.8 per cent. of the total group deaths. Thus, accidental and violent deaths among preschool children have assumed major importance and the prevention of such deaths must be regarded as one of the primary objects of modern social medicine."

Accidents in the Home.—The latest figures on accidental deaths available for England and Wales are contained in the recently published annual report by the chief medical officer of health of the Ministry of Health. "On the State of the Public Health," concerning the period April 1, 1950, to Dec. 31, 1951, shows that in 1951 the number of deaths from motor vehicle accidents was 4,510 and from all other accidents 10,464. The corresponding figures for 1950 were 4,230 and 9,851. Domestic accidents were responsible for over 5,000 fatalities, about 20% of which occurred in children under 5 years of age and about 60% in elderly persons over 65. "It is still the case that more children under 15 die from accidental deaths in their homes than are killed on the roads; it is significant that between the ages of one and five a fatal home accident is one of the largest causes of death."

The items in these letters are contributed by regular correspondents in the various foreign countries.

Diphtheria Immunization.—A recent circular issued by the Ministry of Health summarizes the present position with regard to diphtheria immunization in England and Wales. Notifications of diphtheria have fallen from 23,199 in 1944 to 274 in 1952 (nine months only), while the deaths have decreased from 934 in 1944 to 31 in 1952. The Minister of Health "greatly appreciates all that local authorities have done to achieve this remarkable progress," but "notes that the rate of decline in the number of deaths from diphtheria has not been so great in 1952 as in previous years." The number of children immunized under local authority arrangements (including those immunized by family physicians for whom records were received by the local authority) from the beginning of 1940 to June 30, 1952, was 10,025,032. During the first half of 1952, 287,678 children were immunized, of whom 104,293 were under 1 year of age. This last figure represents only 31% of the estimated number of children reaching the age of 1 year during this period, whereas the aim of the immunization campaign is not less than 75% of babies before their first birthday. The diphtheria immunization target for 1953 is 491,000 babies under 1 year of age.

National Spastics Society.—At the recent annual meeting of the National Spastics Society, which was formed about two years ago, some details were given concerning the facilities now available in Great Britain for the care and training of spastic children. It is estimated that there are more than 20,000 spastic patients in the country, more than half of whom are under the age of 16. Since the society was founded, a clinic has been opened in Croydon, a small school in Reading, a teaching and training center in Swansea, and a large special school for spastic children in Newcastle. Plans are being made to build a special center for these persons in Bristol, another large school in Birkenhead, a play center in Cheltenham, and a small clinic in Kingston. In addition, a small school has been opened by the Swindon Hospital Group, and the N. E. London Hospital Board has decided to open a spastic unit and clinic. The Middlesex County Council has appointed a welfare officer to examine the special needs of these patients. In conjunction with the British Council, the society is planning to turn Coombe Farm, Croydon, into a sheltered training workshop, where 16 to 25-year-old spastic persons will learn to earn a living.

Prescribers' Notes.—"Prescribers' Notes" is the title of a booklet produced by the Ministry and the Department of Health for Scotland, in cooperation with the general services committee of the British Medical Association, and distributed to all general practitioners taking part in the National Health Service. It was first published in February, 1952. The fifth, and latest, issue exemplifies the aims of the publication. It acknowledges receipt from a physician of a 3 lb. parcel containing his month's mail from proprietary drug firms. This consisted of 3 booklets, 8 blotters, 16 postcards (for samples), and 73 folders. Of the 122 preparations advertised, only 7 were priced. It is stated that "many doctors are not giving on their E.C.10's [i. e., the official N.H.S. prescription form] directions for use when tablets or capsules are prescribed." Confirmation of this was obtained by a random sample of prescriptions for tablets or capsules written by different physicians; this showed that 54% of them had given no directions whatever. Attention is also drawn to the fact that "in recent months there has been a steady increase in the average number of prescriptions per form E.C.10. A serious aspect of this increase has been a tendency to write prescriptions for different members of the

family on the same prescription form." An actual example is reproduced of a prescription form made out to a woman, which contains prescriptions for three different lots of tablets: one for phenobarbital, one for ephedrine, and one for amphetamine. The phenobarbital was for the mother and the other two for her young child, but there is no indication of this on the form. It is not suggested that these two types of inadequate prescribing are typical of the general standard, but it is rather disturbing to realize that even a small proportion of practitioners can be so careless in their handling of potentially dangerous drugs.

Factory Accidents.—The annual report of the chief inspector of factories for 1951 shows that there were 828 fatal accidents, compared with 799 in 1950. The number of nonfatal accidents fell from 192,260 to 182,616, the lowest figure recorded since 1938. In recording a rise of 250% (from 1,756 in 1939 to 6,241 in 1951) in the number of accidents connected with transport, the chief inspector calls for an enforcement of stricter discipline among drivers and users of these vehicles. Compared with 1939, there has been a drop of 37% in the number of cases of sepsis, which is largely attributed to the publicity campaign carried out by accident prevention organizations. Reference is made to the increasingly useful role that older persons are playing in industry, e. g., men between 65 and 70 working as part of a mill team in a tin plate works and a man of 67 working as a steel erector, and only 6.5% of the total accidents occurred in persons over the age of 60. The available evidence suggests that older persons are not more prone to injury but that the consequences of their accidents tend to be more serious. The position with regard to accidents to young persons was not so satisfactory, as they represented a higher proportion of all accidents than they did in 1950. In many factories management either did not appreciate certain fundamental characteristics of youth or failed to allow for curiosity, high spirits, immaturity, and lack of judgment.

There was a decrease in the total number of gas poisoning accidents, which fell from 242 (25 fatal) in 1950 to 228 (17 fatal) in 1951; carbon monoxide was responsible for 105 (9 fatal). There were 64 cases of lead poisoning, compared with 57 in 1950; none was fatal. There were 31 cases of anthrax (1 fatal), compared with 36 in 1950. There were 178 cases of epitheliomatous ulceration, only one of which was fatal, a record since 1920 when the condition was made notifiable. The number of notifications of chrome ulceration rose from 143 to 203; the rise was largely due to the increased number of cases among workers engaged in the manufacture of bichromates. Cases of industrial dermatitis voluntarily notified during the year were 3,281, a decrease of 290 over 1950.

On the subject of the introduction of color to make surroundings more cheerful and therefore encourage a bigger output of work, always a popular topic in these reports, reference is made to certain enlightened managements who made determined efforts to use color to the best effect, although the blacks, grays and whites of former years still persist in many cases. Reference is also made to the need for more frequent and systematic cleaning of windows, both inside and out, with a view to improving lighting facilities.

NORWAY

Prognostic Significance of the Size of a Malignant Tumor of the Breast.—Hitherto it has largely been taken for granted that the smaller a malignant tumor in the breast the better is the prognosis. Prof. Leiv Kreyberg, who is in charge of the Institute for General and Experimental Pathology at the Oslo University, has lately challenged the accuracy of this assumption and, in conjunction with Dr. Tor Christiansen, has undertaken a critical scrutiny of 974 cases of cancer of the breast examined in the period 1933-1942. This scrutiny, carried out in 1952, concerned patients with a minimum observation period of 10 years and in many cases a much longer observation period. Among these patients were 56 with tumors whose size at the first examination was that of a Norwegian hazel nut or smaller. In 10 of these cases the size of the tumor was that of only a pea or a bean. All these patients were followed up, and the cause of death was ascertained for those who died. The survivors underwent a clinical examination in 1952, when several of them were found to be suffering from metastases masquerading under the diagnosis of rheumatism. Indeed, there were as many as six women who, in spite of having passed the 10 year observation period in apparently good health, were found to be suffering from hidden metastases to which they ultimately succumbed. As only 17 of the 56 women had been under observation for as long as 14 years, it is probable that several of them will ultimately die of cancer, and the following conclusion is drawn: "More than half of all the patients with a carcinoma of the breast of the size of a hazel nut or less will succumb to their disease. . . ." Even among the 10 women with carcinomas no bigger than a pea or bean when first examined there were as many as 4 who died of metastases.

Professor Kreyberg and Dr. Christiansen have come to the conclusion that, though modern methods of treatment can delay the ultimate fatal issue, patients with exceptionally small tumors when first examined cannot count on any better prognosis than the average of patients in the first and second stages of the disease. This investigation, published in *Tidsskrift for den Norske Laegeforening* for June 1, 1952, is commented on in a leading article in the same number of this journal. Here it is pointed out that "the prognosis for a large tumor of the breast can be just as good as for a small tumor, the matter depending on the degree of malignancy. We celebrate our therapeutic triumphs when the degree of malignancy of a tumor is small."

Medical Supervision of Persons in Radiological Service.—In accordance with the Workers' Protection Act, steps were taken in 1947 to provide for the systematic supervision of persons exposed to x-rays or radium. This supervision consists of technical control provided by the state physical control laboratory and of medical control of exposed persons, whose blood is examined yearly. Responsibility for these measures rests with the state workers' supervision, whose senior medical officer is Dr. Arne Bruusgaard. A member of his staff, Dr. Per Sundby, has recently reported on this supervision, analyzing the results obtained from 1947 to the end of 1952 with 250 men and 1,054 women exposed for at least 15 hours a week to x-rays or radium in the course of their professional duties. In as many as 457 cases (40% of the total) the blood picture showed departures from the normal. Repeated examinations at short intervals of the blood of the same person showed that these abnormalities were comparatively stable. The abnormality rate was higher in certain hospitals with cramped and inconvenient quarters than in more modern quarters whose construction reflected modern standards. There was no evidence to show that a person's age or the number of years of exposure played any essential part in these abnormalities, which were most frequent in persons most exposed, such as "diagnosis nurses" and sanatorium staff members who spent much time in screening.

These blood examinations included hemoglobin determination and erythrocyte and leukocyte counts. The abnormalities found in the blood included leukopenia, lymphocytosis (granulocytopenia), shift to the left, combined changes, occasional morphological changes, and anemia. Sundby's findings, in many respects, confirm the observations previously made in Sweden by Dr. Nils G. Nordenson, whose work on blood changes in radiologists was published in 1946. Dr. Sundby refers also to the work on this subject published in 1950 in the *American Journal of Medical Science* by Dr. H. C. March. These Swedish and American studies do much to support Sundby's conclusion that there is still room for improvement with regard to the medical supervision of persons engaged in radiological work.

PARIS

Origin of Acute Tuberculosis in Children.—An important study was made on acute tuberculosis in children by Prof. R. Debré and Dr. H. E. Brissaud, who reported their results at the March 3 meeting of the National Academy of Medicine. Their aim was to discover the origin of the infection of 418 tuberculous children. In 45% of cases it was not possible to discover the tuberculous contact, but in 55% it was ascertained that the contact was one of the child's parents. In 80% of the cases the contact was known to be tuberculous but had not been isolated for various reasons, such as that he lived with his family while waiting for admission to a sanatorium, he had a leave of absence granted during treatment, or he had a relapse. Further inquiry revealed that no child had been correctly vaccinated and isolated. The authors stressed the necessity of isolating immediately the young patient from his family, of correct education of the public, and also of including tuberculosis among the diseases to be compulsorily reported.

Anticoagulative Action of Sympathicolytics.—At the Jan. 9 meeting of the Medical Society of the Paris Hospitals, P. Uhry and H. Kaufmann presented a paper on the influence of sympathicolytics on blood coagulation. It is known that sympathetic excitation provokes hypercoagulability and that, on the other hand, heparin is an anticoagulant. It is also known that the use of sympathicolytics and heparin therapy are two methods of treatment of angina pectoris. The authors wondered if, by injecting sympathicolytics alone, the same hypocoagulability would not be obtained as with heparin. They used the following drugs: (*a*) a piperoxan derivative (933F); (*b*) an imidaziole derivative, tolazoline hydrochloride, and another derivative; (*c*) a mixture of equal parts of three dihydrogenated ergotoxine alkaloids (Hydergine); and (*d*) pentamethonium bromide. At the same time they studied the influence on the blood of two vasodilators: acetylcholine chloride and sodium nicotinate. Hypocoagulability was determined by Howell's and Quick's prothrombin tests and the heparin tolerance test. Very small doses were used in order to avoid sudden hypotension. The authors could observe the anticoagulative effect of all sympathicolytics either 15 minutes, 1 hour, or 3 hours after intravenous injection. The action was constant in 30 of 31 cases. The anticoagulative action is particularly noticeable after injection of the piperoxan derivative (933F), which is an adrenolytic. The authors stressed that the injection should not be given by perfusion, perfused substances having their particular action on the coagulability of the blood. The studies made on the two nonsympathicolytic vasodilators yielded quite different results. The injection of sodium nicotinate produced an intensive vasodilatation, but, after brief hypocoagulability, hypercoagulability occurred. The same effects occur after intravenous injection of acetylcholine chloride, and are probably due to hypersecretion of epinephrine provoked by acetylcholine. This research is considered important from the clinical and therapeutic points of view, and it is still in progress.

New Roentgenographic Techniques.—In 1950, Van der Plaats showed that by reducing the x-ray tube focus from 1 mm. to 0.3 mm. the blurring of the image was avoided and that the use of punctiform foci produced enlarged images having very sharp outlines. F. Layani, H. Fischgold, and L. Perles thought of combining both processes for making roentgenograms of bone, the images enlarged by means of a punctiform tube, according to Van der Plaats' method, being once more enlarged by photography. The technique of this two stage enlargement is as follows: A direct enlargement of 2.5 to 3 times is obtained with a 0.3 mm. tube, standard Kodak films, and finely grained screens. Then the roentgenogram enlarged 2.5 to 3 times by photography. Thus, a total enlargement of about 6 times is obtained; according to the authors, this is a maximum, above which images become easily blurred. On Nov. 28, 1952, the authors reported the results of this procedure to the Medical Society of the Paris Hospitals. They observed that this technique is most successful with the thinner bones of the limbs, ribs, and skull. They showed some very illustrative films. The authors stressed that studies on a large scale are in progress, but that it may be stated now that osseous architecture undergoes a transformation with aging and that this transformation is radiologically observable on the living bone with this new method.

Pierre Bourgeois, R. Lacourbe, and J. Remy described at the meeting on Feb. 27 a technique of bronchography also based on Van de Plaats' work. They observed that, with this method of enlargement of the image by 2, the widening of the image is such that, in bronchograms with iodized oil (Lipiodol) the images of bronchial arborizations become dissociated and much more visible. The authors use the following technique: a focus-film distance of 80 cm., tension of 80 to 90 kv, and exposure for 0.05 to 0.08 of a second. As contrast medium they used a mixture of heavy iodized oil with very fine pure talc, 9 gm. of talc in 20 cc. of the oil. Thus the bronchial tree fills slowly, alveolar cramming is avoided, evacuation lasts for a few days, and a thin layer persists in coating bronchial walls, permitting the study of the deformation of the mucosa. This method may also be used for the study of the pulmonary parenchyma, as in miliary tuberculosis.

Study of Lipoproteins with Electrophoresis.—In France a simple and rapid method is used to measure serum lipoproteins by the precipitation curve of serum euglobulins with relation to the pH, or Sandor's reticuloendothelial index card. (Sandor of the Pasteur Institute has made extensive studies on serum euglobulins and published a series of papers in recent years on this question.) R. Raynaud, J. R. Déshougues, P. Pasquet, and S. Di Giovanni succeeded in showing that euglobulins of pH 6 contain almost all of the serum lipids and that the level of these stable euglobulins in normal persons represents exactly the total level of circulating lipoproteins. Like other methods, this method of measurement of lipoproteins is only quantitative.

R. Raynaud and his associates have applied electrophoresis on paper to the study of atherosclerosis. The paper strips on which electrophoretic migration takes place are colored by black sudan, and the others by aminoschwartz. The sudan strips show the lipid and the aminoschwartz strips the protide fraction of the serum. Thus lipidogram and protidogram curves are obtained that permit analysis of the qualitative modification of these elements. In a normal lipidoprotidogram, the following fractions are observed: first, the alpha fraction, which is slightly noticeable and negligible with regard to albumin; second, the group of gamma fractions, including the gamma rapid and gamma slow fractions; and third, the three beta fractions, beta rapid, beta slow, and beta very slow. The most important fraction is the beta rapid. The authors observed that, in normal persons to whom a meal rich in fats was given, lipidoprotidograms taken hourly showed that the abounding giant lipidoprotidic molecules, found in the blood after the meal, progressively become lighter molecules within a few hours. They studied the lipidoprotidograms of 16 patients with atherosclerosis, 11 of which had characteristic lipodograms, that is, a quite noticeable diminution of the rapid beta fraction, the appearance of a very important slow beta fraction intermediate between the normal slow beta and the beta rapid. This abnormal slow beta fraction is always strongly colored by black sudan and extends in a rapid beta fraction. The authors were unable to learn the relation between these abnormal lipidograms and the very variable levels of lipoidemia and cholesterolemia. Moreover, 5 of the 11 patients had definite blood hypercoagulability, 2 isocoagulability, and 4 hypocoagulability. Five of 16 patients with atherosclerosis had normal lipidograms, and all 5 had hypocoagulability. The authors have come to the following conclusion: Patients with atherosclerosis with blood hypercoagulability have an abnormally high level of slow beta lipidoproteins. They were able to observe, in the same subjects, the changes

in lipidograms under the influence of anticoagulant treatment; in another case, accentuation of the abnormal lipidogram coincided with a relative increase of the blood hypercoagulability. The authors note that there is a certain relation between blood coagulability and the rapidity of electrophoretic migration of serum lipoproteins in patients with atherosclerosis, but the relation is not absolute. Additional work on this subject is in progress.

Diagnosis of Hemophilia.—In *Le Sang* C. P. Soulier and M. J. Larrieu described a new antihemophilic factor, factor B. The new factor was found in study of a series of cases of hemophilia, in which two types of hemophilia were differentiated, A and B. The B form is the more serious.

SWEDEN

Campaign Against Poliomyelitis.—In a memorandum to the government, the Swedish Ministry of Health has drawn attention to the prospect of outbreaks of poliomyelitis in the near future and to means for dealing with them. It is feared that, owing to the declining immunity to poliomyelitis, there is a serious risk of severe epidemics in Sweden in the autumn of 1953 or 1954. Provided the dosage of gamma globulin is adequate, it can be counted on to provide some, though not absolute, immunity that lasts at best only five weeks. It is calculated that Sweden can produce not more than 3,000 to 4,000 protective doses from blood and not more than 6,000 to 7,000 such doses from placentas. This prophylactic treatment should be repeated at least three times during each season, if between 4 and 5 million potential patients are to be given adequate protection. But, at present, it is impossible to employ gamma globulin as an all-round prophylactic for the reason, among others, that the cost would be prohibitive. Work is now proceeding with the preparation of a quantity of poliomyelitis virus large enough to assure production of an effective vaccine, but the difficulties are such that it is not likely that wholesale immunization with such a vaccine can be provided before 1956.

The memorandom deals in detail with the measures to be taken with cases of bulbar paralysis hitherto nearly always fatal. Only a few years ago, the mortality in these cases was 80 to 90%. In Sweden it was reduced to 60 to 70% in 1947 and 1948, when operations on the larynx and postural treatment to assure better drainage came into general use. The latest figures show that in Sweden practically two-thirds of these patients may be expected to survive largely because teams of specially trained workers can now carry them through the critical period. It is calculated that a maximum of 500 cases of bulbar paralysis requiring respirators or other special devices will have to be dealt with yearly. To this end some 250 respirators, or similar contrivances for artificial respiration, will be needed on the assumption that the average duration of respirator treatment is about two months. While in such a comparatively densely populated country as Denmark cases of bulbar paralysis are concentrated in only 3 special centers equipped to deal with them, thinly populated Sweden will need 10 or 11 such centers distributed throughout the country. They must be staffed by highly specialized persons serving in mobile units. It is anticipated that much use will be made of air ambulance services including helicopters. The authorities in Denmark, Norway, and Sweden have already arranged to cooperate in this field.

In a report on the prophylaxis of certain infections by gamma globulin, Dr. Rolf Lundström, who is attached to a children's hospital as well as to the state bacteriological laboratory, notes that a Swedish preparation is already on the market but available only in small quantities in connection with measles, hepatitis, and poliomyelitis. As Vahlquist showed in 1951, with a dosage of 0.05 to 0.2 ml. per kilogram of body weight, this Swedish preparation of gamma globulin has a good mitigating effect in measles. Since the available quantity of Swedish gamma globulin is quite inadequate for dealing with poliomyelitis alone, there is no prospect of testing this remedy on scarlatina, which can now be successfully treated with penicillin.

Follow-Up of Prefrontal Leukotomies.—Between Aug. 23, 1948, and April 24, 1951, prefrontal leukotomies were performed by the surgical department of a hospital in Vadstena on patients whose subsequent fate has been investigated by Dr. J. Kryger and Dr. Niels A. Thorn, who review their findings in *Hygiea,* now incorporated in *Nordisk Medicin,* June 12, 1953. The results were not so encouraging as those of several other observers; only three of the patients were restored to normal working capacity, while seven were taken charge of by their relatives. Twelve were able to be transferred to homes for the aged, and 47 were rendered more amenable to institutional treatment. There remained as many as 43 for whom no improvement could be claimed and 2 who were worse after the operation. Eight patients died after it. A comparison of these rather meager results with the achievements of W. Freeman and J. W. Watts and those of I. Blomquist and his associates in Scandinavia gives the impression that the fate of the patient depends largely on the quality of the postoperative treatment and the care taken in reeducating each patient. The patients in the group described were, for the most part, transferred immediately after the operation to a hospital department not providing the necessary rest and quiet or adequately trained personnel. If this shortage of highly trained personnel had been overcome, the results would undoubtedly have been much better.

Spinal Anesthesia.—Recent articles in the Scandinavian medical literature show how contradictory are opinions on the merits of spinal anesthesia. In the spring of 1952, Dr. Ored Arner published a study from the Caroline Hospital (Karolinska Sjukhuset) in Stockholm. His advocacy of spinal anesthesia was based on a follow-up study of patients treated in that hospital in 1949 and also of the patients undergoing spinal anesthesia in the same hospital in the 10 year period 1940-1950 when spinal anesthesia was administered 21,230 times. He came to the conclusion that the complications occurring during or after spinal anesthesia were negligible and that neither their character nor their frequency justified any restriction in its use. He was skeptical as to the correctness of the accounts recently given of complications following spinal anesthesia, and he was in favor of adopting it in outpatient departments.

On the other hand, a monograph published on this subject in 1947 by Dr. Gunnar Thorsén gave a very different picture. In the organ of the Swedish Medical Association, *Svenska Läkartidningen,* June 12, 1953, he has returned to the charge, taking up cases one by one in which he and Arner hold conflicting opinions as to the existence or lack of a causal relationship between disasters and spinal anesthesia. It is evidently often difficult to decide this knotty point. Another approach to a solution of the problem is the study of the popularity of spinal anesthesia in different hospitals from year to year. In Arner's opinion, the number of spinal anesthesias performed has increased in Sweden since 1947. To check this opinion, Thorsén scrutinized the annual reports of several Swedish hospitals and choose the years 1947 and 1951 as samples. His list of 16 Swedish hospitals gives the number of spinal anesthesias, expressed as a percentage of all the anesthesias, performed in each of these two years. At the Caroline Hospital there has been little change; the figures for the two years are 46 and 40, respectively. But at the large Serafimer Hospital the percentage has fallen from 31 in 1947 to 1 in 1951. At three provincial hospitals the shift is in the opposite direction; at Umeo, for example, it was from 31 to 57%. But on the whole the popularity of spinal anesthesia seems to have declined between 1947 and 1951, and Thorsén argues that this decline would be found to be still more marked if a year before 1947 and a year after 1951 were used as test years. His disapproval of spinal anesthesia is also voiced in his argument that it implies residence in hospital, whereas alternative anesthetics may render such residence superfluous.

CORRESPONDENCE

TRANSVESTISM

To the Editor:—The use of surgery to minimize the difference between a patient's appearance and the appearance for which he has a neurotic craving is a novel suggestion. In their paper "Transvestism: Hormonal, Psychiatric, and Surgical Treatment" (*J. A. M. A.* **152:**391 [May 30] 1953), Hamburger, Stürup, and Dahl-Iversen propose that plastic surgery be employed to resolve such a discrepancy even in cases in which there is no objective anomaly or deformity that requires correction. If such a procedure is seriously proposed, it requires serious discussion. In discussing the etiology of transvestism, the authors suggest that it is a form of biological intersexuality. In their view, then, the surgical intervention they suggest consists actually of correction of an anomaly. It has not proved possible, to date, to associate the appearance of traits, mannerisms, or behavior patterns characteristic of one sex in persons of the other sex with any objective physical findings, either clinical or laboratory. On the other hand, endocrine dyscrasias, when they affect sexual desire and performance, merely diminish them; they do not pervert them. Physical hermaphrodites and pseudohermaphrodites seldom show overt mixtures of sexual traits or overt perversions. They usually adopt quietly the behavior appropriate to the sex that is assigned to them by their parents rather than to what might be called their biological sex, namely the sex as determined by the gonads.

In their discussion of their patient in particular and of the problem of transvestism in general, the authors adopt rather uncritically the patient's own formulation of his difficulties. The authors and their patient say that transvestites are unfortunate persons on whom a cruel fate has forced somatic sexual characteristics inappropriate to their respective psyches. This trick of fate makes these patients neurotic. This position is consistent with the biological hypothesis mentioned above, but it is a difficult one to maintain. The authors emphasize that the patient wishes to live as a woman. The data they present clearly show, however, that this is not true. The patient has no desire for sexual relations with men. There is no evidence of any maternal interest. To whatever extent one may judge from the material reported, it seems that the patient's only concern is to *look* like a woman; he does not wish to play the role of a woman in any other way. In other words, he has no interest in his social or sexual performance as a woman but, rather, wishes to *see* and *exhibit* himself as a woman. The authors do not clearly state why they consider the patient's neurosis the consequence of the frustration of his desire to be a woman. They seem to have made no effort to rule out the possibility that this desire is a symptom of his neurosis.

It is an important part of the authors' position to affirm that "The wearing of women's clothes in these cases does not aim at, and does not involve, any sexual gratification. . . . On the whole, the sexual life generally plays but a minor part." It is difficult, however, in the case presented, to accept the proposition that the sexual life really does play a minor part. The person whose problem is reported seems to have spent the major part of his constructive efforts to effecting a change in his apparent sexuality. The authors evidently mean sexual intercourse when they use the term "the sexual life." Further, if the exhibition of the male body in women's clothes (and external appearance) is single-mindedly pursued and if sexual intercourse is avoided, then one may infer that sexual gratification is obtained via exhibition rather than by intercourse. The patient's attitude toward sexual contact, homosexual or heterosexual, seems to be a neurotic aversion rather than a simple disinterest. A transvestite, whom I have known, dresses himself in women's undergarments and masturbates while gazing at himself in the mirror.

The following proposition would seem to me more reasonable. This patient, and every male transvestite, has a neurosis. One symptom of the neurosis is the wish to view and exhibit himself as a woman. The neurosis, however, causes pain. Some of the pain arises from the guilt and anxiety inherent in the neurotic process itself. Another source of pain is the frustration from and resentment against social and legal interference with the gratification of the neurotic wish. If such a man can have his genitals removed, he will (*a*) gratify his neurotic wish, (*b*) obtain legal sanction for his dressing as a woman, and (*c*) diminish a certain amount of his guilt (probably a minor amount), since he believes that he is no longer pretending to be what he is not. Freud said that neurotic patients seek psychiatric assistance not because they wish to be cured of the neurosis but because they wish to be helped to be neurotic more efficiently; that is, they wish to retain their neurotic gratifications without the necessary neurotic guilt and anxiety. Such a demand is impossible by virtue of the very nature of the neurotic process. In the case under discussion, the patient's refusal to be cured is indicated by his rejection of psychotherapy and by his refusal to accept hormonal treatment in an attempt to "alter his mentality in a masculine direction." One might anticipate, therefore, that the pleasure of the gratification of the neurotic wish will be temporary and that other aspects of the neurosis will make the patient as unhappy as he was before surgical treatment, if not more so. The reaction may commence after a latency of days, weeks, months, or years.

One must ask whether the treatment proposed by the authors is good therapy. Since the authors are not concerned with the patient's neurosis, they do not claim to be treating it and do not seem interested in following its course. Is any other form of treatment available? In a way, this question is irrelevant since the patient would not accept any other form of treatment; few transvestites will, unless they become subject to legal prosecution or become too seriously disturbed by anxiety or guilt. Is psychotherapy worth trying? In my opinion, no psychotherapeutic procedure less than intensive, prolonged, classic psychoanalysis would have any effect. If properly done, it could probably reduce the patient's agitation and the level of his unhappiness. It is not impossible that his major symptoms may decrease in frequency and urgency. If radical and rapid cures are not available, no physician will reject, in any field of medicine, uncertain, protracted, and expensive treatment, as, for example, in the treatment of cancer, leukemia, and chronic vascular disease of heart and brain.

The authors conclude "The patient will be able to move about freely among other persons, without anyone suspecting that this is not a normal young woman, but a male transvestite whose highest wishes have been fulfilled with the assistance of the medical profession and by society." In view of the exhibitionistic nature of the patient's craving, one might guess that merely passing as a woman in obscurity is what this patient would shun. He would probably continue his efforts noisily to demonstrate that a male body may have not only female clothing but a female appearance. The ethical arguments of the authors are difficult to accept or to reject. They lead, however, to a somewhat disturbing reductio ad absurdum. If a patient has a wish to die, should the physician actively comply with the patient's wish or even condone his suicide? Euthanasia has been upheld by some in patients suffering a fatal physical illness; it has not, so far as I know, been seriously suggested in mental illness.

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TUBERCULOSIS AMONG STUDENTS

To the Editor:—The problem of the excessive occurrence of clinical tuberculosis among American medical students has been with us a very long time. As your editorial (*J. A. M. A.* **152:**922 [July 4] 1953) indicates, sound, established procedures to reduce the degree of exposure to tuberculosis exist today and have existed for some years. It is professionally inadequate to commend those schools that have developed or are developing comprehensive tuberculosis control programs. We should unequivocally condemn any medical school that exposes its student body to groups of patients who may have undiagnosed tuberculosis. It is inadequate to commend schools that have control programs, unless we simultaneously require from them careful epidemiological studies that will adequately account for the failures under the program (From whence came the 11 cases in the seven schools having control programs?).

It is fitting that the medical profession hold a sincere interest in all research that may elicit an explanation of the nature of immunity to tuberculosis in humans. It is ill-advised to becloud the issues involved in the protection of medical students with matters still under investigation. Incidentally, the sound, established procedures that protect medical students are equally effective in the protection of patients and all staff members in the varied medical school situations. Unfortunately, the soundest procedure is the least well established—the elimination of the undiagnosed case from the teaching hospital environment.

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ALLERGY AND PROCAINE HYDROCHLORIDE

To the Editor:—We would like to add our support to H. S. Davis and R. Bryce-Smith (*J. A. M. A.* **152:**477 [May 30] 1953) in their challenging of the conclusions reached by Criep and Ribeiro in their article "Allergy to Procaine Hydrochloride with Three Fatalities" (*J. A. M. A.* **151:**1185 [April 4] 1953). We agree with Davis and Bryce-Smith that other more likely causes of death in these cases have not been ruled out. Also an extensive experience with the use of procaine hydrochloride (Novocaine) as a local anesthetic in over 9,500 hernia operations at Shouldice Surgery, Toronto, Canada, without any evidence of an allergic reaction of minor or serious nature to the drug makes us believe that any such allergic reactions, if they occur at all, must be very rare. The usual dose of local anesthetic used in each hernia operation is between 150 and 200 cc. of 2% procaine hydrochloride. The only reactions we ever noted were of the immediate type in the form of twitchings or mild convulsive movements from which the patients invariably made an immediate uneventful recovery permitting the operation to be performed without further incident and with no postoperative sequelae. We have learned, both clinically and in animal experiments, that if twitchings develop further manipulations will aggravate them and may lead to the convulsive type of reaction. If, on the other hand, all manipulations of the patient are stopped completely for from 5 to 10 minutes, the twitchings do not become worse but usually subside quickly allowing the operation to be carried on in a normal fashion. Since we have increased the preoperative barbiturate sedative to between 2¼ to 4½ grains (0.1 gm. to 0.3 gm.) of sodium pentobarbital (Nembutal) 1½ hours prior to operation, these immediate reactions have been almost completely obliterated. There has been only one mild convulsive reaction in the last 4,500 cases.

For the first 7,000 cases, an intradermal test with 2% procaine hydrochloride was carried out preoperatively. Usually there was no skin reaction, but, in a number of cases, an area of reaction up to 2 in. in diameter developed. Despite this degree of skin reaction, the operations were carried out with procaine as the local anesthesia. In no case was there any suggestion of an allergic or anaphylactic reaction or any increased tendency to the early type twitching reaction. None of the 11 patients in our series who had a convulsive type of reaction had a positive skin reaction; in fact, in each of these cases there was no reaction to the intradermal injection of procaine hydrochloride. Because of this lack of relationship between the intradermal reaction to procaine hydrochloride and the patients' general reactions to it, these intradermal tests have been discontinued as a routine procedure. No epinephrine has ever been used with the procaine solutions in Shouldice Surgery both because this might obscure bleeding points, which might later produce hematomas, and because there is evidence that in some cases the combination can have deleterious effects on the cardiovascular system. Reaction is apparently commoner to epinephrine than to the procaine hydrochloride (Campbell, E. B.: *Canad. M. A. J.* **62:**364, 1950). Our analysis of the cases reported by Criep and Riberio and our experience with procaine lead us, therefore, to believe that the fatalities they reported were actually not due to a procaine allergy.

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ULCERATION OF SKIN FOLLOWING USE OF ARTERENOL

To the Editor:—The article by Uricchio, Salenda, and Cutts (*J. A. M. A.* **152:**607 [June 13] 1953) is very timely. It is my opinion that tissue necrosis following intravenous administration of arterenol in the leg veins occurs very commonly. Not only tissue necrosis occurs, but actual necrosis of the vein and concurrent venospasm and arteriospasm of the vessels of the same extremities develop and cause ischemic necrosis of the distal parts of the extremities. As the authors suggest, there was venospasm and also spasm of the vasovasorum causing necrosis of the vessel in their patient. The underlying reason for this, in my opinion, is that the venous circulation of the lower extremities is sluggish and, therefore, results in a higher concentration of the drug in the leg veins. To date, I know of this type of necrosis occurring in the lower extremities after arterenol was given in five cases. My experience in administering the medicament via the veins of the upper extremities has been very satisfactory, and at no time has necrosis of tissue or veins occurred unless there was subcutaneous spillage. This information ought to be widely disseminated because arterenol is very useful and may, under certain circumstances, be life-saving.

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AMEBIC PATIENT 13 DAYS OLD

To the Editor:—A baby girl, born on Feb. 8, 1952, had numerous vegetative forms of Endameba histolytica in loose stools examined in our laboratory on Feb. 21, 1952. Numerous leukocytes were seen too. Generally, bacillary dysentery is believed to have a sudden, acute onset, while amebic dysentery is believed to have a long incubation period of months or years. Amebic dysentery appeared in this breast-fed infant by the 13th day of life; the incubation period could not, therefore, have been more than 13 days. We saw by then not only free living amebic forms, three to five per field, but signs of inflammation and pus. On Nov. 28, 1952, the feces of the same baby were again examined in our laboratory, and numerous free living amebic forms were still present. The infant's mother was examined on Nov. 20, 1952, and was found to have free living forms of E. histolytica too.

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BUREAU OF LEGAL MEDICINE AND LEGISLATION

MEDICOLEGAL ABSTRACTS

Sherman Anti-Trust Act in Relation to Medical Society Sponsored Prepaid Medical Care Plan.—This was an action by the United States against the Oregon State Medical Society and others for an injunction to prevent and restrain violations of the Sherman Anti-Trust Act, the Government asserting that a conspiracy existed to restrain and monopolize the business of providing prepaid medical care in Oregon and to restrain competition between physician-sponsored prepaid medical plans. The District Court dismissed the complaint (United States v. Oregon State Medical Society, 95 F. Supp. 103; *J. A. M. A.* **136:**1067 [July 14] 1951) and the Government appealed directly to the Supreme Court of the United States.

This controversy, said the Supreme Court, centers about two forms of "contract practice" of medicine. In one, private corporations organized for profit sell what amounts to a policy of insurance by which small periodic payments purchase the right to certain hospital facilities and medical attention. In the other, railroad and large industrial employers of labor contract with one or more physicians to treat their ailing or injured employees. Both forms of "contract practice," for rendering the promised medical and surgical service, depend upon physicians or panels of physicians who cooperate on a fee basis or who associate themselves with the plan on a full or part time employment basis. Objections of the organized medical profession to contract practice are both monetary and ethical. Such practice diverts patients from independent practitioners to contract physicians. It tends to standardize fees. The ethical objection has been that intervention by employer or insurance company makes a tripartite matter of the physician-patient relation. Since the contract physician owes his employment and looks for his pay to the employer or the insurance company rather than to the patient, he serves two masters with conflicting interest. In many cases companies assume liability for medical or surgical service only if they approve the treatment in advance. There was evidence of instances in which promptly needed treatment was delayed while company approval was being obtained and in which a lay insurance official disapproved treatment advised by a physician.

In 1936, five private associations were selling prepaid medical certificates in Oregon and the physicians of that State, alarmed at the extent to which private practice was being invaded and superseded by contract practice, commenced a crusade to stamp it out. The campaign was bitter on both sides. State and county medical societies adopted resolutions and policy statements condemning contract practice and physicians who engaged in it. They brought pressure on individual physicians to decline or abandon it. They threatened expulsion from medical societies, and one society did expel several physicians for refusal to terminate contract practice. In 1941, however, seven years before the present action was commenced, there was an abrupt about-face on the part of the organized medical profession in Oregon. The organized physicians completely reversed their strategy, and, instead of trying to discourage prepaid medical service, decided to render it on a nonprofit basis themselves. In that year, Oregon Physicians Service, one of the defendants in this action, was formed. It is a nonprofit Oregon corporation, furnishing prepaid medical, surgical, and hospital care on a contract basis. After seven years of successful operation, the Government brought this suit against the physicians, their professional organizations, and their prepaid medical care company, asserting two basic charges: first, that they conspired to restrain and monopolize the business of providing prepaid medical care in the State of Oregon and, second, that they conspired to restrain competition between physician-sponsored prepaid medical plans within the State of Oregon in that Oregon Physicians Service would not furnish prepaid medical care in an area serviced by a local society plan.

We find not the slightest reason to doubt the genuineness, good faith, or permanence of the changed attitude and strategy of these defendant-appellees that took place in 1941, said the Supreme Court. It occurred seven years before this suit was commenced and, so far as we are informed, before it was predictable. It did not consist merely of pretensions of promises but was an overt and visible reversal of policy, carried out by extensive operations that have every appearance of being permanent because wise and advantageous for the physicians. The record discloses no threat or probability of resumption of the abandoned warfare against prepaid medical service and the contract practice it entails. We agree with the trial court that conduct discontinued in 1941 does not warrant the issuance of an injunction in 1949. Striking the events prior to 1941 out of the Government's case, the court continued, except for purposes of illustration or background information, little of substance is left. The case derived its coloration and support almost entirely from the abandoned practices. A parade of local medical society members from all parts of the state, apparently reputable, credible, and informed professional men, testified that their societies now have no policy of discrimination against private health associations and that no attempts are made to prevent individual physicians from cooperating with them. Members of the governing councils of the state and Multnomah County societies testified that since 1940 there have been no suggestions in their meeting of attempts to prevent individual physicians from serving private associations. The manager of Oregon Physicians Service testified that at none of the many meetings and conferences of local societies attended by him did he hear any proposal to prevent physicians from cooperating with private plans. If the testimony of these many responsible witnesses is given credit, no finding of conspiracy to restrain or monopolize this business could be sustained. Certainly, the Supreme Court concluded, we cannot say that the trial court's refusal to find such a conspiracy was clearly erroneous.

The other charge, continued the court, is that defendants conspired to restrain competition between the several physician-sponsored organizations with the State of Oregon. Apparently, if a county was provided with prepaid medical care by a local society, the state society would stay out or, if the county society wanted to inaugurate a local plan, the state society would withdraw from the area. No matter what organization issues the certificate, it will be performed, in the main, by the local physicians. The certificate serves only to prepay their fees. The result, if the state association should enter into local competition with the county association, would be that the inhabitants could prepay medical services through either one of two medical society channels. There is not the least proof that duplicating sources of the prepaid certificates would make them cheaper or more available, result in an improved service, or have any beneficial effect on anybody. Through these nonprofit organizations, the physicians of each locality, in practical effect, offer their services and hospitalization on a prepaid basis instead of on the usual cash fee or credit basis. To hold it illegal because they do not offer their services simultaneously and in the same locality through both a state and a county organization would be to require them to compete with themselves in the sale of certificates. Under the circumstances proved here, the Supreme Court concluded, we cannot regard the agreement by these nonprofit organizations not to compete as an unreasonable restraint of trade in violation of the Sherman Act.

Accordingly the judgment of the trial court dismissing the plaintiff's complaint was affirmed. *United States v. Oregon State Medical Society, et al., 72 S. Ct. 690 (1952).*

MEDICAL LITERATURE ABSTRACTS

UNITED STATES

A.M.A. Arch. Otolaryngology, Chicago

57:371-474 (April) 1953

*Cardiac Arrest from Otolaryngologist's Viewpoint. R. M. Hosler. —p. 371.
Pathogenesis and Histopathology of Chronic Adhesive Otitis. L. Ojala. —p. 378.
Illness and Death of Afranius Burrus. J. Körbler.—p. 402.
Thiopental with Succinylcholine and Topically Applied Tetracaine: More Ideal Anesthetic for Peroral Endoscopy. R. Ament and H. Meyers. p. 405.
*Preanesthetic Sedation of Children: Analysis of Effects for Tonsillectomy and Adenoidectomy. J. E. Eckenhoff.—p. 411.
"I Scarce Was Sure I Heard You": Saga of Work in Prevention, Conservation, and Rehabilitation By and For the Hard of Hearing. E. P. Fowler.—p. 417.
Osteitis of Sphenoid Sinus. L. L. Haas.—p. 427.
New Pneumophone: An Economical and Simple Diagnostic Instrument for Rapid Quantitative Determination of Eustachian Tubal Function. E. M. Herzon.—p. 437.

Cardiac Arrest During Otolaryngological Operations.—Sudden cessation of the heart beat in the operating room can occur with local anesthesia as well as with general anesthesia. The cause of this disaster is a lack of oxygen in the vital tissues, but some of the predisposing factors are the position of the patient, decreased vital capacity, tracheal obstruction, poor oxygenation, anemia, anxiety, insufficient atropine, shock, poor cardiac filling, torsion of the heart, excessive accumulation of carbon dioxide despite good oxygenation, errors of judgment, excessive preanesthetic and anesthetic drugs, and cardiac disease. Frequently, the patient has been given too many drugs and too little oxygen. There are two steps in resuscitation, namely, (1) reestablishment of the oxygen system and (2) restoration of the heart beat. The first step is for an alert anesthetist to place a tube into the trachea and deliver 100% oxygen into the lungs under positive pressure. Once the lungs are adequately aerated, the left side of the chest should be opened and the heart and the intact pericardium squeezed upward against the sternum. If oxygenated blood is being delivered manually to the brain by the hydrodynamic pump, the brain can be kept viable indefinitely. If the heart at this stage is not beating rhythmically, the next step is to insert a large rib retractor, quickly open the pericardium, and immediately resume massage while the operating table has been lowered to about 10 degrees with the patient in the Trendelenburg position. If, after a considerable period of adequate massage, the heart does not start beating, about 4 to 5 cc. of a 1:10,000 epinephrine solution should be injected into the right ventricle and massage continued. If the heart is not in stand-still but in ventricular fibrillation, an electric shock is usually required and should be furnished by a defibrillating machine. The major causes for failure to restore the heart beat are poor aeration of the lungs, ineffectual manual massage, retention of carbon dioxide, and intrinsic heart disease. Planning for the eventuality of cardiac arrest is one of the best ways to prevent its occurrence. An illustrative case of a 5-year-old patient subjected to a tonsillectomy and adenoidectomy under general anesthesia is described. The child made an uneventful recovery.

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Titles marked with an asterisk (*) are abstracted.

Preanesthetic Sedation of Children.—Many otolaryngologists avoid sedation because of the danger of depression of the cough reflex and the attendant hazard of aspiration of blood and debris into the lungs. Other pediatricians and psychiatrists believe that undesirable personality changes may be related to inadequate preoperative preparation and sedation. The effects of preanesthetic medication, including atropine and scopolamine alone or in several combinations with pentobarbital and morphine, were studied in 1,500 children subjected to a tonsillectomy and adenoidectomy. The incidence of crying prior to anesthesia could be sharply reduced by the addition of a barbiturate to the belladonna drug. Respiratory depression and cyanosis appeared more frequently if morphine and pentobarbital were included in preanesthetic medication, but no evidence was obtained that reflexes were depressed unduly postoperatively. Scopolamine is a better sedative than atropine. Morphine should not be employed in preparation for tonsillectomy and adenoidectomy because it diminished the respiratory force whenever partial respiratory obstruction occurred in the course of oropharyngeal insufflation anesthesia. A barbiturate can and should be administered. Children less than 5 years old are most disturbed by operation and anesthesia. The facts presented argue that sedatives should be given before children are anesthetized. Preanesthetic sedation may increase the risk of respiratory depression during the operation. With inadequately trained anesthetic personnel, psychic trauma is to be considered of secondary importance and use of sedatives is to be avoided.

A.M.A. Arch. Surgery, Chicago

66:397-578 (April) 1953. **Partial Index**

Time and Tide. G. B. Packard.—p. 401.
Are Certain Diseases Associated with Specific Blood Groups of Rh Antigens? C. W. Mayo and J. O. Fergeson.—p. 406.
Surgery in Colonic Diverticulitis. R. J. Patton.—p. 410.
Surgical Treatment of Stricture of Common and Hepatic Bile Ducts: 28 Year Study. W. Walters and A. H. Kelly.—p. 417.
Exploration of Common Bile Duct: Analysis of 100 Cases. S. B. Childs and A. E. Prevedel.—p. 423.
Liver Function as Determined by Serum Cholinesterase Activity: Studies in Patients Undergoing Surgery on Biliary Tract. H. E. Snyder, C. D. Snyder and L. D. Bunch.—p. 426.
Treatment of Complications of Plantar Warts. D. W. Robinson.—p. 434.
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Basting Axillary Flap for Wounds of Radical Mastectomy. E. L. Keyes, B. O. Hawk and C. S. Sherwin.—p. 446.
*Spontaneous Intracranial Hemorrhage in Children: Report of Eight Cases in Children 15 Years of Age or Younger. W. P. Ritchie and G. Haines. —p. 452.
*"Plication": Method of Reducing Caliber of Vein Grafts. E. J. Schmitz, L. R. Sauvage, E. A. Kanar and H. N. Harkins.—p. 461.
Surgical Division of Patent Ductus Arteriosus. W. J. Potts.—p. 468.
Late Peripheral Arterial Embolectomy. J. H. Olwin, W. S. Dye and O. C. Julian.—p. 480.
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Anomalies of Posterior Tibial Tendon: Cause of Persistent Pain About Ankle. R. K. Ghormley and I. M. Spear.—p. 512.
Surgical Treatment of Cushing's Syndrome: Report of One Case and General Considerations. M. E. Johnson and F. R. Harper.—p. 517.
Substitution of Excluded Rectosigmoid Colon for Urinary Bladder: Preliminary Report. L. M. Kinman, D. Sauer, V. T. Houston and W. F. Melick.—p. 531.
Electrolyte Loss by Postoperative Nasal-Gastric Suction. F. W. Taylor. —p. 538.

Intercostal Dissection and Radical Mastectomy.—Hutchinson feels that the several modes of spread of carcinoma of the breast have been largely overlooked owing to the misconception that the lymphatic system is an autonomous circulatory system until it communicates with the major blood vessels. Blood and lymphatic systems are closely related at the point of tissue-fluid movements. This probably explains widespread blood-borne metastasis in cases in which there is a small early lesion and normal lymph nodes. In the 81 cases under consideration the operability was determined by excision and

frozen section study of the primary breast tumor. Supraclavicular lymph nodes with questionable metastases were removed in a few cases. In the absence of supraclavicular metastasis, a Halsted radical mastectomy was done and was followed by an exploration of the first three interspaces to obtain information concerning the dissemination of carcinoma in the lymphatic system outside of the axilla. This is not to be regarded as a treatment of internal mammary spread. It was found that one-fourth of the persons on whom the author operated were exposed to a useless procedure, since fatal metastatic disease had been disseminated more widely than had been realized. He gained the impression that the location of the lesion really makes little difference; if it has a spreading potential, it spreads. In patients whose breast tumors had been recognized for one month or less, 15% had a spread to the intercostal nodes. The author disagrees with Urban, who advises en bloc internal mammary dissection only for lesions of the inner half of the breast, as the region of spread of a given tumor is unknown. Of 18 patients with internal mammary spread, 9 are already dead while 7 are alive but uncured; only 2 remain without signs of residual disease. This indicates the futility of radical mastectomy as a curative procedure when spread to the internal mammary lymphatics has already occurred. If surgical treatment of cancer of the breast is undertaken, it should include the axilla, supraclavicular and retroclavicular structures, and en bloc dissection of the internal mammary chain and of the anterior mediastinal structures. The inability of the surgeon to remove completely the lymphatics and lymph nodes in these areas is obvious. The cancer is incurable if at the time of the initial operation it has extended to the supraclavicular or the internal mammary nodes. Pathologists and surgeons will accomplish jointly more by attempting to recognize and eradicate the precancerous breast lesions than by radical surgical removal of breast cancer.

Spontaneous Intracranial Hemorrhage in Children.—The report concerns spontaneous intracranial hemorrhage in eight children, 15 years of age or younger. Two deaths and six recoveries resulted. Angiomatous malformations were present in the four cases in which the cause was definitely proved. Aneurysm of the intracranial portion of the internal carotid artery was the diagnosis in one other case. The cause could not be established in the remaining three cases. Two deaths were caused by massive and rapid hemorrhage. Spontaneous subarachnoid hemorrhage in children arises as a rule from a congenital vascular anomaly, which is usually angiomatous in nature. Successful treatment depends on accurate localization and surgical intervention. Angiography has been of great value in the diagnosis of these lesions.

Plication to Reduce the Caliber of Vein Grafts.—In the course of their laboratory experiments with venous grafts the authors became aware of the need for a method that would reduce the diameter of an oversized vein graft. The following method was evolved: After the graft was anastomosed and distended with blood under arterial pressure, the diameters and circumferences of the graft and recipient vessel were determined by caliper and string measurements. The amount of reduction necessary was calculated, and the appropriate width of vein wall was measured with calipers. The vein graft was then plicated by means of interrupted Lembert-type sutures placed about 2 mm. apart. By use of oiled 6-0 nonabsorbable surgical (silk) suture material on a sharp atraumatic needle, it was possible to place most of the sutures without penetrating the intima. The sutures were so placed that the entire width of vein wall, which was infolded, was encompassed by each stitch. The authors got satisfactory results with this method in reducing the diameter of fresh inferior vena cava autografts implanted into the abdominal aorta of 10 adult dogs and 12 weanling pigs. Similar groups of animals with unplicated grafts were used as controls. Examination of the plicated segments of vein grafts from seven days to six months after operation revealed that the sutures were covered by endothelium, the vessel walls were thickened, and the line of plication was barely discernible. The incidence of thrombosis in plicated grafts was greatly reduced.

American Journal of Mental Deficiency, Albany, N. Y.

57:533-729 (April) 1953. Partial Index

Neurosis in a Mental Defective. J. R. Williams and L. Belinson.—p. 601.
Cutis Verticis Gyrata: Review with Report of Seven New Cases. S. Polan and T. Butterworth.—p. 613.
*When Should the Seriously Retarded Infant be Institutionalized? D. H. Jolly.—p. 632.
Clinical and Genetical Study of Microcephaly. J. A. Book, J. W. Schut and S. C. Reed.—p. 637.
Study of Effect of Glutamic Acid on Delinquent Adult Male Mental Defectives. A. A. Kurland and C. A. Gilgash.—p. 669.

When Should a Retarded Child Be Institutionalized?—Earlier institutionalization of the severely retarded child has been the trend for the past 15 years. While the total of first admissions and the total number of patients have increased gradually by less than one-third, first admissions before the age of 5 have almost tripled. Jolly feels that this trend is largely due to earlier recognition and to advice from physicians for immediate institutionalization. It has been economically impossible, however, to provide additional crib facilities at the rate demanded. Consequently long waiting lists have been built up in most institutions that accept infants and obstetricians and pediatricians should reevaluate their stand on immediate institutionalization. To about the age of 3, the physical care of most retarded children is no greater than that of a normal child of the same age. It is usually better to have the parents work out their emotional conflicts gradually, while caring for the child at home, during the first years of life. Under the guidance of a physician who will take time to explain the possible causes of the defect, give an honest prognosis, and emphasize the positive features of institutional life, the parents will come to accept their misfortune and to see the logic of separation. The request for institutionalization will then come from the parents themselves and will have complete acceptance. The author feels that the optimal time for institutionalization is seldom, if ever, in early infancy.

American Surgeon, Atlanta, Ga.

19:397-490 (May) 1953

Bleeding as Complication of Diverticulosis or Diverticulitis of Colon. W. C. Quinn and A. Ochsner.—p. 397.
*Tantalum Gauze in Presence of Infection: Clinical Experience. A. R. Koontz.—p. 403.
Persistent Pain Following Cholecystectomy. H. C. Myers.—p. 412.
Gaseous Distention of Gastrointestinal Tract—Its Significance, Prevention and Treatment. W. H. Prioleau and J. M. Stallworth.—p. 418.
Hypoparathyroidism Following Thyroid Operations. J. W. Patterson and G. A. Higgins.—p. 423.
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Surgical Repair and Rehabilitation of Cleft Palate and Harelip Patient. G. T. Howard Jr.—p. 441.
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Sacrococcygeal Teratoma (Including Case Report). K. C. Sawyer, R. E. Orr and M. J. Baskin.—p. 463.
Neurofibroma of Jejunum with Perforation: Case Report. F. B. Warshauer and R. E. Nelson.—p. 467.
Lymphosarcoma of Duodenum Arising in Periampullary Region: Case Report. I. W. Kaplan, L. T. Tyler and S. L. Canale.—p. 473.
Choledochoduodenal Fistula: Report of Two Cases Due to Duodenal Ulcer. C. L. Cogbill and H. P. Roth.—p. 480.

Tantalum Gauze in Presence of Infection.—Tantalum gauze and wire (both monofilament and braided) cause no trouble in the presence of infection, such as persistent sinus tracts or buried infected granulomas, unless other foreign bodies, such as silk or cotton are also present. If implanted tantalum gauze becomes exposed, granulations will grow through it and the wound will heal spontaneously unless there is an associated dead space. Abundant subcutaneous tissue should be left whenever possible under the skin flaps used to cover tantalum. In potentially infected ventral hernia wounds, the peritoneum should be closed with braided tantalum wire (which does not cut through). Monofilament or braided tantalum wire may be used to suture the tantalum gauze in place. Absorbable surgical suture should be used for ligatures. Silk and cotton should not be used in such wounds (except possibly in the subcutaneous tissue), as they cause trouble in the presence of infection. Drains should be used to prevent the collection of

serum in extensive dissection of skin flaps. Koontz used a piece of tantalum gauze in several cases as large as 12 by 12 in. (30 by 30 cm.), almost covering the entire abdominal wall, and obtained healing.

California Medicine, San Francisco

78:417-486 (May) 1953

Antibiotics and Chemotherapy. S. A. Waksman.—p. 417.
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Does Your Hospital Need a Recovery Room? T. W. McIntosh.—p. 438.
Carcinoma of Prostate: Diagnosis and Treatment. J. C. Presti.—p. 440.
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Cancer Research, Chicago

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Fungi in Human Neoplastic Tissue. H. Mescon, J. W. Eiman and A. M. Kligman.—p. 318.
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Transient Regression of Murine Spontaneous Mammary Tumors with Analogs of Dimethyldiaminobenzene. D. W. Woolley.—p. 327.
Immunological Properties of Carcinogen-Protein Conjugates Containing 4-Dimethylaminostilbene and Its 2'-Methyl Analog. H. J. Creech, H. F. Havas and J. Andre.—p. 335.
Epidermal Carcinogenesis in Mouse Induced by One, Two, or Three Applications of 9,10-Dimethyl-1,2-Benzanthracene Followed by Repeated Applications of Croton Oil: New Hypothesis of Mechanism of Carcinogenesis. P. Shubik and A. C. Ritchie.—p. 343.
Heterologous Transplantation of Human Lung Cancer. H. S. N. Greene.—p. 347.
Assay of Spontaneous and Transplanted Mammary Tumors for Mammary Tumor Agent. J. J. Bittner.—p. 361.
Macromolecular Particles of Normal and Regenerating Rat Liver. M. L. Petermann, N. A. Mizen and M. G. Hamilton.—p. 372.
Age of Tumor-Bearing Hosts as Factor Conditioning Transmissibility of Rous Sarcoma by Filtrates and Cells. F. Duran-Reynals and P. M. Freire.—p. 376.
Growth of Human Tumors in Cortisone-Treated Laboratory Animals: Possibility of Obtaining Permanently Transplantable Human Tumors. H. W. Toolan.—p. 389.

Diseases of Chest, Chicago

23:477-594 (May) 1953

Diagnosis of Cardiospasm. A. M. Olsen, C. B. Holman and H. A. Andersen.—p. 477.
Physiologic Evaluation of Patients Before and After Mitral Commissurotomy. R. S. Cosby, G. C. Griffith, D. C. Levinson and others.—p. 499.
Tibione in Treatment of Pulmonary Tuberculosis. S. S. Cohen, R. H. Frost and Wen-Yao Yue.—p. 507.
Domiciliary Treatment of Pulmonary Tuberculosis: Seton Hospital Home Care Program. A. Kane, S. Pollak and H. Brigham.—p. 518.
*Roentgenographic Aspects of Complete and Incomplete Pulmonary Infarction. M. J. Smith.—p. 532.
Cervical Sympathetic Stimulation Caused by Carcinoma of Lung. O. C. Brantigan.—p. 547.
Tuberculosis and Histoplasmosis in Foreign Students Entering Our Colleges. W. T. Palchanis.—p. 552.
Anatomic-Pathologic Comparative Study of Pulmonary Tuberculosis Deaths With and Without Streptomycin. H. O. Puelma and S. R. Ebensperger.—p. 558.
Tracheopathia Osteoplastica: Report of Case. W. A. Lell.—p 568.
Report of Case of Right Pneumothorax Following Induction of Pneumoperitoneum. C. Vysniauskas and H. H. Brueckner.—p. 572.
Spontaneous Hemopneumothorax with Early Thoracotomy: Case Report. J. Boss, D. Dugan and J. E. Farber.—p. 577.
Tuberculosis of Tongue Treated with Streptomycin and PAS. E. R. Wiese.—p. 582.

Complete and Incomplete Pulmonary Infarction.—The roentgenographic aspects of pulmonary infarction in 10 women and 15 men between the ages of 9 and 79 years are reported. The pulmonary infarcts in these patients were subdivided into the complete and incomplete types according to the classification of Hampton and Castleman. Of the 25 patients, 22 had the complete type, with a sequence in the involved lung area consisting of filling of the alveoli with blood, while larger units such as the alveolar sacs and atria remain filled with air for as long as 24 hours. At the end of 24 hours necrosis of the alveolar walls and degeneration of the red cells starts. Organization begins in the second week and may last for months until a fibrous scar remains. The incomplete infarct begins similarly, with edema, fluid, and red and white blood cells in the alveoli; this does not progress to alveolar wall destruction and heals by resolution in two to four days. There are both primary and secondary manifestations of complete infarcts. The primary signs are those produced by the infarct itself and the secondary signs by the effects of the infarct. The odd shape of a homogenous density, pyramidal or triangular, round, oval or irregular, was observed in the author's cases, and was helpful in making the diagnosis of infarction. The location is variable. According to reports in the literature, there seems to be a predilection for the lower lobe of the right lung. The author's observations supported this view, the right lung being the site of an infarct two times as often as the left, with the right lower and middle lobes being involved in 44% of the cases. Odd and round shadows may be caused by superimposition of multiple infarcts and should be "dissected" by multiple films, including spot films. The infarct is always in contact with one or more pleural surfaces; the cardiac margin is rounded or "hump-shaped." The long diameter is always parallel to the largest pleural surface involved. Other workers have described secondary signs of pulmonary emboli, such as clouding in the region of the costophrenic angle on the side of the infarct, accentuation of the hilar vessels on the side of the lesion, the presence of a prominent pulmonary conus, and elevation of the diaphragm on the affected side. Some of these signs were observed occasionally by the author, but are usually unreliable. Pleural effusion may or may not be secondary to an infarct. In contrast to the experience by other workers, the pleural effusion observed by the author in six of his cases was not of greater roentgenographic dominance than the parenchymal density; in only one patient was the amount of fluid large, and not even in the latter was the density of the infarct hidden by the fluid. In the three cases of incomplete infarction, faint, sharp, short lines were seen in chest films coincidentally with the clinical occurrence of pulmonary emboli. These were situated transversely or obliquely and were not visible on roentgenograms previously; they changed character in two to seven days. The shadows believed to represent incomplete infarcts occurred in the middle third of the lungs and the bases, were often single, and were not associated with abdominal lesions. The experience in interpreting these linear shadows is limited, and further studies are necessary to verify the author's suggestion. The concept of the incomplete infarct probably overlaps that of the pulmonary embolus without infarction. Embolism without infarction, or probably with incomplete infarction, occurs very frequently; an area of pulmonary ischemia may be a roentgen sign of this situation, as described by Westermark and others. Clinical evidence of a pulmonary embolus associated with negative roentgenographic evidence may also warrant this diagnosis.

Eye, Ear, Nose & Throat Monthly, Chicago

32:191-224 (April) 1953

Early Diagnosis of Adult Primary Glaucomas. H. S. Sugar.—p. 191.
Management of Nerve Deafness. J. Sataloff.—p. 196.
*Experimental Hydrosulphosol Therapy of Thermal and Chemical Ocular Burns in Rabbits. W. H. Havener, H. F. Falls and H. B. McGee.—p. 201.
Streptomycin Therapy of Tuberculous Otitis Media: Evaluation and Case Reports. L. L. Titche.—p. 203.

Sulfhydryl Therapy of Ocular Burns in Rabbits.—Comparable corneal burns were produced in both eyes of 10 rabbits. Six rabbits received thermal (actual cautery) burns varying in extent from 2 mm. to an entire quadrant of the cornea. The corneas of two rabbits were cauterized with a single drop of 28% ammonium hydroxide applied for 30 seconds and then washed for two minutes with isotonic sodium chloride solu-

tion. A similar application of glacial acetic acid was administered to the corneas of two rabbits. All of the corneal burns were quite severe and extended deeply into the stroma. A generous amount of a sulfhydryl compound (Hydrosulphosol) was instilled daily into each right eye of the animal and a comparable quantity of castor oil into the left eye. A binocular pressure bandage was applied daily after the instillation of a drop of 30% sodium sulfacetimide in order to prevent the development of extensive purulent ulcers. The daily observation of the control and treated eyes did not reveal any material differences between the course and end result of corneal burns treated with the sulfhydryl compound and the control series. It is possible that a potential hazard exists in the employment of sulfhydryl therapy, inasmuch as anaerobic bacterial growth stimulation and delayed wound healing have been experimentally reported by other workers.

Georgia Medical Association Journal, Atlanta

42:159-224 (April) 1953

Asynchronous Bilateral Benign Papilloma of Ureter with Subsequent Cancer of Ureteral Stump, Bladder and Vagina. E. Felber.—p. 198.
Factors Influencing Prognosis of Carcinoma of Colon. J. D Martin. —p. 201.
Tumors of Neck. R. L. Brown.—p. 205.
*Car Window Fractures of Left Elbow. A. S. Carswell.—p. 211.
Constriction Ring Dystocia: Report of Two Cases Rather Intensively Studied Among 17,000 Labors. R. Torpin.—p. 212.
*Residual Typhus Fever in Georgia. H. Greene and J. E. McCroan Jr. —p. 216.

Car Window Fractures of Elbow.—Car window fractures of the left elbow are often referred to as "side-swipe" fractures. Most of them are sustained by drivers of automobiles, while their elbow is protruding from the car window. Children sustain such fractures in school buses or other vehicles. "Side-swipe" fractures range from simple fracture to complete traumatic amputation of the left arm. They include compound fractures of both bones of the forearm, compound fractures of the humerus, comminuted fracture dislocation of the elbow, and avulsion of the elbow joint, including the lower third of the humerus and the proximal portion of the ulna and the radius. At the University Hospital in Augusta, Ga., 20 cases of injuries received while the arm was protruding from the car window were treated over a three year period (1948-1951). In several cases this was not the only injury received, but it was often the more disabling. The histories of three patients with this type of fracture are reported. Counteracting the shock is of primary importance. Thorough débridement, wound irrigation, and administration of tetanus antitoxin and chemotherapeutic agents are other essential measures. Some form of intramedullary fixation or the use of bone screws may be required. For treating fracture of the humerus a hanging cast may be preferable to open reduction. Urging car drivers and passengers not to rest arms on the ledges of their car windows is the most important factor in the prevention of these disabling injuries.

Residual Typhus Fever in Georgia.—In 1937 a typhus control program was organized by the Department of Public Health. The earliest measures employed to combat the disease consisted of rat eradication, rat-proofing of buildings, and promotion of community projects for better refuse collection and disposal. These measures were effective in local areas but few communities participated in the program. In 1945 DDT insecticide dust became available, and with the assistance of federal funds a greatly expanded control program was possible. The application of DDT dust to rat runs, harborages, and burrows was aimed directly at the principal vector, the Indian rat flea (Xenopsylla cheopis). The success of this phase of the program is indicated by the decline in the number of human infections and by a significant drop in the percentage of rat bloods showing murine typhus fever antibodies. The number of reported human cases dropped from 1,111 in 1945 to 58 in 1951, and a corresponding decrease was observed in the percentage of rats with positive blood. The destruction of the domestic rat was made much more effective by the introduction of a new rodenticide. Differentiation between typhus and other febrile diseases is highly desirable because of the control measures required. For instance, although typhus and Rocky Mountain spotted fever usually respond alike to antibiotic therapy and react in an almost identical manner in the Weil-Felix test, the two diseases are dissimilar with regard to the tick vector. They can be definitely differentiated only by means of complement fixation tests. Leptospirosis may likewise be mistaken for typhus unless laboratory tests are carried out. With regard to the prospect of complete eradication of typhus, the authors say that, as with other diseases dependent on a complicated host-parasite relationship for existence, the process of transmission becomes more and more difficult as the number of infected and/or susceptible persons declines. Since rats remain infective for their ectoparasites for limited periods of time, it is apparent that in any given locality some minimum number of rats is required to permit continued transmission of the infection. Thus, when that critical level is passed, it is probable that the disease will rapidly disappear.

Indiana State Medical Assn. Journal, Indianapolis

46:273-368 (April) 1953

Hormone-Producing Tumors of Ovary. D. A. Bickel and J. R. Bennett. —p. 293.
Present Status of Radioactive Cobalt Therapy. J. A. Campbell and W. J. Little.—p. 300.
Should Patients be Told When Diagnosis is Cancer? O. R. Bowen. —p. 303.

46:369-468 (May) 1953

Clinical Experiences with Use of Radioactive Iodine in Thyroid Disease. G. W. Irwin.—p. 385.
Problems and Dangers of Blood Transfusions. B. K. Wiseman.—p. 390.
Roles of Family Physician and Local Health Officer in Public Health Program. H. Emerson.—p. 396.
Hospital Relationships of General Practitioner. M. V. Kahler.—p. 401.

Journal of Experimental Medicine, New York

97:591-766 (May) 1953. **Partial Index**

Synthesis of Type III Pneumococcal Polysaccharide by Suspensions of Resting Cells. A. W. Bernheimer.—p. 591.
Antiviral Substance from Penicillium Funiculosum. R. E. Shope.—p. 601.
Occurrence of Changes Resembling the Inflammatory in Skin Injured and Incubated After Excision. J. V. Cooke, D. Goldring and L. I. Kahn.—p. 651.
Quantitative Studies of Prostatic Secretion: III. Simultaneous Measurement of Size and Secretion of Canine Prostate and Interaction of Androgenic and Estrogenic Substances Thereon. C. Huggins and J. L. Sommer.—p. 663.
Stages of Calcification of Rat Kidney After Administration of Uranium Nitrate. L. K. Dahl.—p. 681.
Studies on Propagation in Vitro of Poliomyelitis Viruses: IV. Viral Multiplication in Stable Strain of Human Malignant Epithelial Cells (Strain HeLa) Derived from Epidermoid Carcinoma of Cervix. W. F. Scherer, J. T. Syverton and G. O. Gey.—p. 695.
Aspermatogenesis in Guinea Pig Induced by Testicular Tissue and Adjuvants. J. Freund, M. M. Lipton and G. E. Thompson.—p. 711.
Observations on Submicroscopic Basophilic Component of Cytoplasm. K. R. Porter.—p. 727.
Studies on Generalized Schwartzman Reaction: III. Lesions of Myocardium and Coronary Arteries Accompanying Reaction in Rabbits Prepared by Infection with Group A Streptococci. L. Thomas, F. W. Denny Jr. and J. Floyd.—p. 751.

Journal of International College of Surgeons, Chicago

19:401-532 (April) 1953

Primary Tumors of Retroperitoneum: Clinicopathologic Analysis of 162 Cases, Review of Literature and Tables of Classification. M. M. Melicow.—p. 401.
Schwannoma of Pharynx: Report of Case and Review of Literature. P. Guggenheim.—p. 450.
Treatment of Angioneurotic Edema with Etamon-Benadryl Combinations. J. M. Hammer.—p. 475.
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Neonatal Bleeding and Cerebral Birth Palsy. S. Rosner.—p. 494.
Clinical Management of Pruritus Ani. L. S. Mann.—p. 505.
Fat Embolism: Its Relation to Intramedullary Nailing. C. S. Scuderi. —p. 508.
Traumatic Laceration of Stensen's Duct Producing Intermittent Obstruction. J. Hersh.—p. 513.

Journal-Lancet, Minneapolis

73:119-152 (April) 1953. **Partial Index**

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Report of Committee on Tuberculosis, American College Health Association May 3, 1952. W. T. Palchanis.—p. 136.

Journal of Neurophysiology, Springfield, Ill.

16:203-342 (May) 1953. **Partial Index**

Similarity in Action Between Curare and Strychnine on Cortical Neurons. Hsiang-Tung Chang.—p. 221.
Behavioral Changes Following Thalamic Injury in Cat. L. Schreiner, D. McK. Rioch, C. Pechtel and J. H. Masserman.—p. 234.
Ontogenetic Study of Motor Deficits Following Dorsal Brachial Rhizotomy. A. M. Lassek and E. K. Moyer.—p. 247.
Independence of Diffuse Thalamo-Cortical Projection System Shown by Specific Nuclear Destructions. J. Hanbery and H. Jasper.—p. 252.
Experimental Study of Transition from Normal to Convulsoid Cortical Activity. R. B. King, J. L. Schricker Jr. and J. L. O'Leary.—p. 286.
Autonomic Responses Mediated Via the Corticospinal Tract. W. M. Landau.—p. 299.
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Journal of Pediatrics, St. Louis

42:525-644 (May) 1953

Vaccinia. Passive Immunity in Newborn Infants: I. Placental Transmission of Antibodies. II. Response to Vaccinations. C. H. Kempe and A. S. Benenson.—p. 525.
*Effectiveness of Penicillin Administered Orally at Intervals of 12 Hours. N. N. Huang and R. H. High.—p. 532.
Chronic Myelogenous Leukemia in Children. J. V. Cooke.—p. 537.
Mist-O_2-Gen Therapy and Postural Drainage for Respiratory Difficulties of Newborn Infant: Preliminary Report. R. Denton and C. D. Ross. —p. 551.
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Septic Arthritis and Osteomyelitis in Infancy. S. Heymann, I. Kessel, H. Jackson and others.—p. 561.
Method for Measurement of Cerebral Blood Flow in Infants and Children. H. W. Baird and J. M. Garfunkel.—p. 570.
Treatment of Pinworm Infection (Enterobiasis) with Papain. T. S. Bumbalo, F. J. Gustina and R. E. Oleksiak.—p. 576.
*Use of Electrophrenic Respirator in Management of Respiratory Difficulty in Postmeasles Encephalitis. L. Weinstein and C. G. Colburn.—p. 580.
Infantile Cortical Hyperostosis (Caffey-Smyth Syndrome): Report of Case in Negro Infant. M. E. Jenkins and R. B. Scott.—p. 586.
New Infusion Valve. R. D. Hawkins and F. J. Vlazny.—p. 589.
Myocarditis of Unknown Etiology (Fiedler's?) Treated with ACTH: Report of Case in 7-Year-Old Boy with Improvement. R. F. Garrison and R. C. Swisher.—p. 591.
Subcutaneous Fat Necrosis of Newborn Infant: Report of Case in an Infant Born by Cesarean Section, and with No Anoxia. R. E. Ivy and F. H. Howard.—p. 600.
An Intrathoracic Cyst of Enterogenic Origin in Young Infant. F. Kuipers and J. Wieberdink.—p. 603.
Four Recurrent Attacks of Pneumococcus Meningitis with Recovery. C. W. Tribiano.—p. 609.
Childhood Cancer (Tumors, Leukemia, and Hodgkin's Disease): Review. J. H. Bufkin and W. C. Davison.—p. 612.

Penicillin at Twelve Hour Intervals.—The effects of different regimens of penicillin therapy were studied in 292 children with 308 various common infections considered sufficiently severe to require antibacterial therapy. Eighty-seven were given orally 200,000 units of potassium penicillin G in a liquid vehicle as an initial dose, followed by 100,000 units of the same preparation at intervals of four hours; 103 were given orally 300,000 units of the same preparation at intervals of 12 hours; and the remaining 102 children were given orally 300,000 units of procaine penicillin at intervals of 12 hours. Clinical and laboratory studies showed that patients who received 300,000 units of penicillin every 12 hours responded as satisfactorily as those who received 200,000 units initially followed by 100,000 units every four hours. The effectiveness of procaine penicillin was comparable to that of potassium penicillin G when each was administered in equivalent amounts at intervals of 12 hours.

Respiratory Difficulty in Postmeasles Encephalitis.—The occurrence of a pronounced degree of respiratory irregularity during the acute phase of postmeasles encephalitis is reported in three boys and one girl. Institution of electrophrenic respiration had an immediate effect and permitted the maintenance of adequate gas exchange until normal regulation of breathing could be established. One of the most striking features of the respiratory difficulty in postmeasles encephalitis was its relatively short duration when properly treated. If the patient can be tided over for a few hours, normal breathing is resumed. There is no recurrence of respiratory irregularity once normal breathing has been established. The electrophrenic respirator is a valuable adjunct to the limited therapeutic armamentarium available for the management of the postinfectious encephalitides. Its proper use is unquestionably life saving. Since convulsions appear to be an almost constant antecedent or concomitant finding at the time of respiratory irregularity, treatment to control and stop them must be carried out simultaneously with institution of adequate ventilation. Phenobarbital sodium parenterally in a dose adjusted to the body weight terminated the acute seizure in a short time in most cases. It has been the practice to administer diphenylhydantoin (Dilantin) sodium at the same time and to continue its use for five or six days after convulsions have stopped. Oxygen has always been given. In instances where phenobarbital sodium is ineffective and the patient is in status epilepticus, anesthetization by the inhalation of ether is frequently effective when all other measures have failed.

Journal of Thoracic Surgery, St. Louis

25:435-544 (May) 1953

Physiologic Studies Following Thoracic Surgery: IV. Mechanism of Development of Acidosis During Anesthesia. W. W. Stead, F. E. Martin and N. K. Jensen.—p. 435.
Personal Experiences with 10 Consecutive Cases of Heart Wound Treated Successfully by Pericardiotomy and Cardiorrhaphy: With Reference to 74 Earlier Cases, 54 Surgically Treated at Harlem Hospital. E. A. Naclerio, A. deL. Maynard and J. W. V. Cordice Jr.—p. 448.
Thoracoplasty and Resection for Pulmonary Tuberculosis. F. A. Hughes, C. C. Lowry and J. W. Polk.—p. 454.
*Pulmonary Resection in Treatment of Blastomycosis. H. A. Buechner, A. E. Anderson, L. H. Strug and others.—p. 468.
Recovery from Experimental Atelectasis. P. J. S. Damsté, H. Heemstra and M. N. J. Dirken.—p. 480.
Malignant Disease in Association with Hiatus Hernia and Thoracic Stomach. D. Robb.—p. 493.
Double Lumen Catheter for Bronchospirometry. K. Marsh.—p. 495.
Maximum Breathing Capacity and Saline Infusion Test. W. G. Gobbel Jr., T. S. Reeve, A. Stranahan and J. Hughes.—p. 498.
Broncho-Subdiaphragmatic Fistula: With Report of Two Cases. H. A. Albertson.—p. 505.
Traumatic Cardiac Septal Defect: Report of Case in Which Diagnosis is Established by Cardiac Catheterization. P. H. Guilfoil and J. T. Doyle. —p. 510.
Thoracoplasty with Temporary Extraperiosteal Lucite Ball Plombage. A. H. Povah.—p. 516.
Unusual Aneurysm of Pulmonary Artery: Report of Case in Which Treatment was Surgical. D. A. MacKenzie and O. T. Clagett.—p. 524.
Reaction of Pulmonary Tissue to Lipiodol. W. L. Felton II.—p. 530.

Pulmonary Resection for Blastomycosis.—Lobectomy was performed on two men, aged 56 and 49 years, with pulmonary blastomycosis; one had a discrete nodular lesion and the other acute progressive disease. Although the correct diagnosis was not established preoperatively in the older patient, early intervention for a lesion suspected of being malignant resulted in eradication of the blastomycotic process while it was still localized. A three month period of complete bed rest was enforced, during which time the patient remained afebrile and asymptomatic and gained 19 lb. (8.6 kg.) in weight. After an additional three months of gradually increased activity, the patient resumed his former occupation as an elevator operator and nine months after the operation he was in excellent health. There was no roentgenographic evidence of recurrent disease. This highly satisfactory result was thus obtained with lobectomy and bed rest alone without postoperative administration of a fungicidal agent. In the younger patient a preoperative diagnosis of bronchiogenic malignancy with secondary infection was favored over that of a primary inflammatory process. There was excellent postoperative reexpansion of the remaining lobes of the right lung. The patient was essentially asymptomatic and was discharged from the hospital on the

24th postoperative day with instructions for modified bed rest at home. Within three weeks fever and cough recurred, and sputum culture was positive for Blastomyces dermatitidis. Preoperative and postoperative use of some of the more effective fungicidal agents now available might have prevented the postsurgical flare-up of the disease process. These two cases are the first to be reported in the literature in which lobectomy was employed in the treatment of pulmonary blastomycosis. Pulmonary blastomycosis may closely simulate bronchiogenic carcinoma in its roentgenographic appearance and must be considered in the differential diagnosis of the latter condition. The excellent results obtained in the older patient suggests that pulmonary resection should be strongly considered in the therapy of some cases of blastomycosis. The prompt recurrence of the disease in the other patient seems to indicate that resection alone does not represent suitable therapy in dealing with intense, poorly localized, progressive blastomycotic lesions. The management of blastomycosis should simulate that of pulmonary tuberculosis. The combined use of drugs and resection might offer more favorable results in pulmonary blastomycosis, just as streptomycin and *p*-aminosalicylic acid combined with surgical intervention have improved the prognosis of tuberculosis.

Journal of Urology, Baltimore

69:467-604 (April) 1953. **Partial Index**

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Renal Adenoma: Pyelograms Showing Growth Over a Five Year Period. H. S. Shelley.—p. 480.
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Experimental Substitution of Common Bile Duct with an Autologous Ureteral Graft. I. T. Rieger, F. J. Wahl and G. M. Hass.—p. 487.
Foreign Bodies in Ureter: Complication from Use of Electrodes for Ureteral Meatotomy. J. C. Valenta and C. V. Chenoweth.—p. 492.
Use of Cortisone in Interstitial Cystitis: Preliminary Report. J. E. Dees. —p. 496.
Ureterostomy-in-Situ. S. N. Vose and G. M. Dixey.—p. 503.
Bladder Carcinoma: 5 Year Survival. F. E. Cook Jr. and J. C. Kimbrough.—p. 507.
*Nonoperative Treatment of Stress Incontinence in Women. L. R. Wharton. —p. 511.
Non-Surgical Management of Congenital Neurogenic Vesical Dysfunction. C. L. Prince and P. L. Scardino.—p. 520.
Useful Instrument in Repair of Vesicovaginal Fistula. B. Bloom.—p. 528.
*Granulomatous Prostatitis: Condition Which Clinically May be Confused with Carcinoma of Prostate. G. J. Thompson and D. D. Albers. —p. 530.
Notes on Prostatic Surgery, and Results Which Should be Expected of It. D. M. Davis.—p. 539.
Spindle Cell Sarcoma of the Prostate Gland: Case Report. G. H. Derian. —p. 544.
An Unusual Case of Penile Carcinoma. P. H. Reitman.—p. 547.
Cancer of Penis: Report of 88 Cases. J. H. Furlong Jr. and C. A. W. Uhle.—p. 550.
Funnel and Bib Plastic for Hypospadias: Follow-Up Experience. M. Muschat.—p. 556.

Treatment of Stress Incontinence in Women.—Wharton describes his experiences in the treatment of 26 women with stress incontinence, all of whom were studied medically, gynecologically, and, when necessary, urologically, to determine the causative factors and the most promising methods of treatment. Stress incontinence occurs in a variety of circumstances: in the young and old, in the nulliparous and parous, independently of any other urinary disorder, in the fat and thin, in the presence of senility and neurological disorders, postoperatively, and without respect to any other gynecological disorder. It seems that the sphincter mechanism in women is not particularly rugged, and that its efficiency may be easily impaired by factors that increase the pressure or stress on the full bladder or impair the neuromuscular mechanism of urinary control. Cystoscopy with elimination of local urological disorders such as trigonitis, urethritis, hydroureter, and hydronephrosis was employed by Wharton in six patients. Two were cured and three improved, but the cystoscopic treatment failed in the sixth patient. Stress incontinence of one year's duration disappeared spontaneously without any treatment in one patient; two others who received no treatment were not improved. Weight reduction effected improvement in two of the patients. Exercises were used exclusively or as the chief therapy in 19 cases, and for 15 of these, enough time has passed to warrant drawing conclusions. Six patients have been cured, five have been improved, and four have not been noticeably benefited. The exercises consist solely in the voluntary tightening of the vesical and rectal sphincters, as recommended by Kegel. The patient is told to contract the vesical sphincter just as if she were trying to prevent the escape of urine; at the same time she is to contract the rectal sphincter as if she were trying to prevent the escape of gas or fecal material. In Wharton's experience, one can explain these exercises by verbal directions, without demonstrating these muscles. Furthermore, he feels that the Perineometer (a device for measuring the force of contraction of perineal muscles), which was formerly used in the exercise treatment, is a useless encumbrance. Improvement in urinary control is usually evident within a month after the exercises are begun. If stress incontinence is accompanied by gross gynecological disorders, such a prolapse of the uterus or vagina or large pelvic tumors, these disorders should be corrected by surgical means. At the same time, if feasible, a Kelly plication of the vesical sphincter should be done. When, however, there is no significant gynecological or urologic disorder, the stress incontinence should be treated by exercises designed to strengthen the sphincter mechanism and by accessory medical or urologic means as indicated.

Confusion with Carcinoma of Prostate of Granulomatous Prostatitis.—Thompson and Albers found that in a number of cases in which a preoperative diagnosis of carcinoma of the prostate gland was made, microscopic examination of tissue resulted in the diagnosis of granulomatous prostatitis. With the aim of clarifying the confusion existing between prostatic carcinoma and granulomatous prostatitis and to uncover symptoms and laboratory findings that might indicate the latter diagnosis preoperatively, they obtained at random the records of 36 patients who had received the pathological diagnosis of granulomatous prostatitis, and who had undergone transurethral resections at the Mayo Clinic during the period from January, 1943, to September, 1949, inclusive. No attempt was made to study every case of granulomatous prostatitis in the records of the clinic. In these 36 cases, the preoperative diagnosis of carcinoma of the prostate or probable carcinoma of the prostate had been made 20 times and benign hypertrophy 16 times. The authors describe six cases that illustrate various phases of granulomatous prostatitis. They include two patients who had eosinophilic granulomatous prostatitis. This study reveals nothing in the history or physical findings that can be used as positive evidence to differentiate malignant disease and granulomatous prostatitis. It seems likely that this condition occurs oftener than is recognized and that some patients with this benign condition are in danger of being treated for carcinoma of the prostate. The use of hormonal therapy, such as the administration of diethylstilbestrol, and especially the use of surgical castration, must not be considered in the absence of evidence of carcinoma in biopsy specimens or in the absence of roentgenologic evidence of carcinoma of the prostate. Granulomatous prostatitis can produce a consistency of the prostate identical to that produced by carcinoma and, unless tissue is examined microscopically, the proper differential diagnosis cannot be established.

Laryngoscope, St. Louis

63:281-354 (April) 1953

Glomus Jugulare Tumor of Middle Ear: Clinical Aspects. L. A. Brown. —p. 281.
Relation of Septum Reconstruction to External Deformities of Nose. R. H. Riggs.—p. 293.
*Tracheal Obstruction from Benign Lymphoid Hyperplasia in Cricoidal and Tracheal Mucosa: Report of Case. G. W. Olson.—p. 304.
Climatologic Factors in Ear, Nose and Throat Disease. J. M. Kinkade. —p. 311.
Changing Concepts Regarding Therapeutic Management of Certain Endoscopic Problems. H. E. Bozer.—p. 321.
Terramycin and Surgery in Case of Osteomyelitis of Frontal Sinus: Case Report. M. Hyman.—p. 340.

Tracheal Obstruction from Benign Lymphoid Hyperplasia.—The chief complaints in a girl, aged 2½ years, were gasping for breath during exercise, a change in voice, and noisy breathing while sleeping. The mother stated that the baby

had developed noisy breathing during the second week of life and that this gradually became worse. When the baby was 3 months old, the parents consulted a pediatrician. Chest roentgenograms in July, 1949, were said to have revealed enlargement of the thymus gland. Three x-ray treatments were given at that time, but no significant improvement in symptoms was noted. When the child was first seen by Olson in February, 1952, the voice had a "tinny" sound. Respiratory distress was noted when the child was allowed to run around in the office. A scout film of the upper airway revealed narrowing of the upper trachea as it merged with the larynx. The lumen of the trachea at this point was reduced to one-third of normal size by a mass arising from the posterior wall of the trachea. The child was hospitalized, and direct laryngoscopy was performed with the child under light general anesthesia. A rounded, smooth, nonulcerated mass of firm consistency and with a broad base was seen in the posterior wall at the cricoid level. A 3.5 mm. bronchoscope could not pass the obstruction. Tracheotomy was performed on Feb. 29, 1952. The tube was inserted at the level of the seventh and eighth tracheal cartilages. A 5 mm. bronchoscope was then introduced and specimens of tissue were removed for microscopic examination. The child was returned to the ward in good condition, but late that evening her respirations became labored. A bilateral pneumothorax had developed, which necessitated thoracotomies and the insertion of a Foley catheter into each pleural space. The dyspnea promptly disappeared. The pneumothorax cleared rapidly, and the Foley catheters were removed after three days. In reviewing all of the pathological material and the clinical history, it was felt that the patient had a benign deposit of lymphoid tissue beneath the tracheal mucosa. The further course was uneventful and the child was well at the time of writing, but only time will tell whether or not subsequent infections will result in recurrence of the mass.

Louisiana State Medical Society Journal, New Orleans

105:91-134 (March) 1953

Cancer of Thyroid. H. Mahorner.—p. 91.
Treatment of Carcinoma of Esophagus. L. H. Strug.—p. 96.
Radioactive Gold in Treatment of Advanced Carcinoma of Prostate and Bladder: Preliminary Results in 24 Cases. E. Burns, J. U. Hidalgo and R. Nieset.—p. 99.
Coronary Embolism: Case Report. E. B. Flake, M. D. Hargrove and W. R. Matthews.—p. 103.
Clinical Study of Hypotensive Effect of Two Veratrum Viride Products. H. J. Dupuy, J. Signorelli and A. M. Attyah.—p. 106.
Endometrial Hyperplasia. A. G. McHenry.—p. 107.
Acute Intussusception in Adolescents and Adults. W. F. Becker.—p. 110.
Chondrodystrophia Calcificans Congenita: (Dysplasia Epiphysialis Punctata). J. W. Birsner and R. Cohen.—p. 114.
Evaluation of Disability in Applicants for Welfare Assistance. I. Stevenson and C. A. Potter Jr.—p. 116.

Metabolism, New York

2:201-296 (May) 1953

*Lipodystrophy Following Insulin Injections. R. G. Paley.—p. 201.
Comparative Effects of Insulin Administered Intravenously and Subcutaneously. B. Beidleman, L. A. Principato and G. G. Duncan.—p. 211.
Potassium Deficiency in Man. W. H. Blahd and S. H. Bassett.—p. 218.
Evidence for Presence of Amphoteric Electrolyte in Urine of Patients with "Renal Tubular Acidosis." J. Dawson, E. Dempsey, F. Bartter and others.—p. 225.
Total Accountable Radioiodine: Combined Thyroid Uptake and Urinary Excretion of I^{131} in Study of Thyroid Function. W. E. Goodwin.—p. 238.
Hepatic Necrosis Due to Bromobenzene as Example of Conditioned Amino Acid Deficiency. D. Koch-Weser, J. de la Huerga, C. Yesinick and H. Popper.—p. 248.
Effect of Lyophilized Thymic Extracts on Serum Calcium and Phosphorus. H. Schwarz, M. Price and C. A. Odell.—p. 261.
Influence of Testosterone Propionate on Protein Metabolism of Hypophysectomized Rats. J. J. Rupp and K. E. Paschkis.—p. 268.
A 24-Hour Periodicity in Relative Specific Activity of Phosphorus Fractions from Liver Microsomes of Mice. C. P. Barnum and F. Halberg.—p. 271.

Lipodystrophy Following Insulin Injections.—Loss of subcutaneous fat occurs in diabetic patients receiving insulin; local hypertrophy of the subcutaneous fat may also occur. Paley feels that the term lipodystrophy should refer to all abnormal reactions of the subcutaneous fat to insulin injections, and that loss of this tissue should be termed lipoatrophy. The following causes have been suggested for the disappearance of the subcutaneous fat: trauma due to the repeated injections, low-grade inflammation, tricresol used as a preservative in insulin, the assumed lipase content of insulin, the strong initial concentration of insulin, and local sensitivity to insulin. Few of these possibilities have been supported by fact. Data were collected during the years 1947 to 1950, when diabetic patients with dermal reactions to insulin were studied at a diabetic clinic in Leeds, England. Lipoatrophy developed in 102 of 186 diabetic patients (54.8%) in whom insulin therapy was started at the Leeds Clinic between 1947 and 1949, by far the highest recorded incidence of this complication. It occurred in 25.5% of the males and in 64.7% of females. The lipoatrophy was very slight in 45% of those affected, moderate in 39%, and severe in 16%. In the 77 patients in whom the time of onset of lipoatrophy was known, it was 269 ± 36.9 days from the first injection. Patients using protamine zinc insulin had a significantly higher incidence than those receiving soluble insulin. Patients originally showing dermal reactions to insulin were most likely to suffer subsequent atrophy. Spontaneous improvement occurred in almost 30% of the patients with this complication irrespective of the type of treatment. The exact cause of the abnormality is still unknown, and therefore no rational therapy is available.

Missouri Medicine, St. Louis

50:321-392 (May) 1953

Giant Calculus of Bladder: Report of Case and Review of Literature. E. H. Burford, C. E. Burford and J. E. Glenn.—p. 339.
*Mortality of Acute Appendicitis Treated Surgically in Small General Hospital: 15 Year Review. J. H. Hill and R. W. Butcher.—p. 341.
Treatment of Chronic Constipation in Childhood. R. J. Burke.—p. 343.
Estradiol 17-Cyclopentyl-Propionate. S. D. Soule and M. Yanow.—p. 345.

Mortality of Surgically Treated Acute Appendicitis.—The mortality of acute appendicitis was determined in 2,212 patients treated surgically in a small general hospital between 1936 and 1950. Of the 2,212 patients, 738 were treated between 1936 and 1940, representing the presulfonamide era; of the 738 patients, 28 died, a mortality rate of 3.8%. Nine of 891 patients died who were treated between 1941 and 1945, when sulfonamides were used, a mortality rate of 1%. Of the remaining 583 patients treated between 1946 and 1950, when both sulfonamides and the antibiotics penicillin and streptomycin were used, 3 died, a mortality rate of 0.5%. The majority of the deaths were due to peritonitis, and the present favorable results were attributed to the use of antibiotics and sulfonamides in treatment. The incidence of gangrene and perforation remained essentially unchanged during the 15 year period.

Nebraska State Medical Journal, Lincoln

38:169-200 (May) 1953

PANEL DISCUSSION ON HEADACHE

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Headache from Standpoint of Internist. A. M. Greene.—p. 174.
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Headache from Standpoint of Neurologist and Psychiatrist. R. S. Wigton.—p. 179.
Dermatomyositis: Report of Case with Autopsy and Literature Review. L. L. Hoaglin Jr., G. H. Demay, W. B. Moody and J. R. Schenken.—p. 184.

Neurology, Minneapolis

3:321-398 (May) 1953

America's First National Neurologic Institute. P. Bailey.—p. 321.
Sensory and Motor Loss After Non-Neural Injuries; 43 Cases of Ascending Neuritis. M. Kelly.—p. 327.
Ammonium Chloride as an Adjuvant to Anticonvulsant Medication in Epilepsy. F. Kant, W. E. Gilson, H. A. Peters and H. Bouman.—p. 336.
Myelography by Means of I^{131}; the Myeloscintigram. F. K. Bauer and E. T. Yuhl.—p. 341.
Muscle Action Potentials in Myopathies with Special Regard to Progressive Muscular Dystrophy. P. Pinelli and F. Buchthal.—p. 347.
Minor and Major Tremor; Results in 544 Treated Cases. L. J. Doshay, K. Constable and A. Zier.—p. 360.
Total Protein Content of Cerebrospinal Fluid in Multiple Myeloma. M. J. Madonick and S. Solomon.—p. 369.

New England Journal of Medicine, Boston

248:709-746 (April 23) 1953

Use of Telepaque in Cholecystography: Comparative Study. C. F. Miller and J. W. Carrier.—p. 709.
An Improved Test for Bilirubin in Urine. G. Klatskin and L. Bungards. —p. 712.
Chemotherapy of Tuberculosis. W. S. Schwartz.—p. 717.
*Correction of Rectal Procidentia: Thiersch Operation as Simple Palliative Procedure. J. Berkowitz.—p. 720.
Tuberculosis: Incidence Among American Medical Students, Prevention and Control and Use of BCG. W. A. Abruzzi Jr. and R. J. Hummel. —p. 722.
Kartagener's Syndrome (Situs Inversus, Bronchiectasis and Chronic Sinusitis): Report of Case. M. Katz, E. E. Benzier, L. Nangeroni and B. Sussman.—p. 730.
Practical Use of Color in Clinical Diagnosis. E. H. McGehee.—p. 731.

248:747-796 (April 30) 1953

Coarctation of Thoracic Aorta: Signs Demonstrable by Conventional Roentgenography. L. L. Robbins and S. M. Wyman.—p. 747.
Spontaneous Pneumothorax: Medical and Surgical Movement: Analysis of 75 Patients. H. M. DuBose, H. J. Price and P. H. Guilfoil.—p. 752.
Nevus Unius Lateralis: Report of Case. N. Lenson.—p. 757.
Treatment of Hyperthyroidism: Medical or Surgical. H. M. Thomas Jr. —p. 760.
Periarteritis Nodosa and Other Forms of Necrotizing Angiitis. P. M. Zeek.—p. 764.
Bradycardia and Syncope as Early Manifestations of Bronchogenic Carcinoma. A. M. Paull, D. V. Pecora, P. Cooper and H. A. Lawson. —p. 773.

Correction of Rectal Procidentia.—The occurrence of rectal procidentia in the sense of abnormal descent of all the coats of the rectum with protrusion through the anus as a large mass in the intergluteal region is reported in three women between the ages of 68 and 75 years. The Thiersch operation designed to diminish the size of the anal canal by means of a nonyielding wire cuff, thus obtaining a mechanical barrier to the prolapsing mass of tissue, was performed with local anesthesia in all three patients. There was little postoperative pain. Hot boric acid compresses or hot sitz baths offered satisfactory relief from discomfort. A daily enema is required indefinitely to prevent fecal impaction. There were no complications or recurrences in any of the three patients at 10 months, 9 months, and 4 months after the operation. Despite the fact that the wire became loosened in one patient, there was no recurrence. The Thiersch operation is a simple palliative procedure recommended for the correction of rectal procidentia in the elderly, debilitated patient. Performed with local anesthesia, the operation requires about 15 minutes. The author's patients have been restored to a normal existence.

New Jersey Medical Society Journal, Trenton

50:127-166 (April) 1953

Medical Society of New Jersey—Its First Quarter Century. F. B. Rogers. —p. 132.
New Jersey Service to the Physically Handicapped. H. A. Brodkin. —p. 135.
The Headache Problem. S. F. Smith.—p. 138.
Towards Better School Health Examinations. N. Castaldo.—p. 148.
*Clinical Investigation of the Oral Mercurial Neohydrin Over One Year Period. W. Leff and H. E. Nussbaum.—p. 149.
*Generalized Dermatosis Caused by Dental Infection: Case Report of Bacteria Sensitivity and Its Control by Desensitization. S. L. Hanfling and S. N. Knopf.—p. 153.

New Mercurial Diuretic for Oral Administration.—A new mercurial diuretic for oral use, chlormerodrin (Neohydrin) was given to 33 patients with congestive heart failure, all of whom had previously received meralluride (Mercuhydrin) injections at least once a week and were maintained with digitalis therapy and a low salt diet. Four patients stopped medication because of unpleasant side-effects. One patient stopped taking the drug because he did not show improvement, but after one month started again and became fully compensated. Twenty-eight patients tolerated the drug well for from 2 to 12 months. All signs and symptoms of congestive heart failure disappeared. No meralluride injections were necessary in this group. The most effective dose was one tablet of chlormerodrin (10 mg.) three or four times a day. With chlormerodrin therapy, the maintenance of cardiac compensation and improvement in tissue nutrition is also accompanied by a marked restoration of confidence and well-being.

Generalized Dermatosis Caused by Dental Infection.—A man, aged 28, reported that while he was in the Army he had two attacks of vesicles and bullae of his hands and feet that later became generalized. They oozed and were finely crusted and erythematous, and there was swelling of the face, necessitating many weeks of hospitalization. The present attack began as an itchy erythema of the back of his hands and of his neck. Immediately after this he noticed blisters of the hands, and three days later his face became swollen and was covered with a fine crust. During this period the eruption became generalized. Later he had several similar attacks following tooth extractions or other dental care. He was tested with the penicillin and the anesthetic employed by the dentist, but reactions to both were negative. It was concluded that the eruption was due to a skin sensitivity to the organisms involved, and it was decided to desensitize the patient with an autogenous vaccine. A culture from material from a peridontal pocket grew a pure strain of microaerophilic alpha hemolytic streptococci. The autogenous vaccine was prepared from organisms that had been treated with tricresol. A course of graded subcutaneous densensitization injections was given. This case, the authors suggest, was one of "generalized toxic eruption," possibly with an erythema multiforme bullosa of the extremities. Several points argue against this diagnosis. The eruption followed immediately after dental work on six separate occasions, sometimes within three hours. Following desensitization nine teeth were extracted with only one reaction, which followed an unusual amount of trauma. This seems fairly conclusive proof that this dermatitis was caused by the temporary bacteremia resulting from dental work in the presence of skin hypersensitivity to the cultured organism.

New York State Journal of Medicine, New York

53:921-1032 (April 15) 1953

*Varicose Veins, a Chronic Disease: Evaluation of 20 Years of Experience in Treatment. H. I. Biegeleisen.—p. 963.
Vascular Changes in Diabetic and Arteriolosclerotic Retinopathy Obtained by Modified Solution of Benzyl Cinnamate. J. Jacobson.—p. 970.
Treatment of Degenerative Joint Disease (Osteoarthritis) by Intra-Articular Instillation of Hydrocortisone (Compound F). S. Davison. —p. 975.
Present-Day Physiology and Management of Hyperthyroidism. B. J. Ficarra.—p. 978.
Enzymatic Débridement in Treatment of Arteriosclerosis Obliterans with Gangrene. H. L. Myers.—p. 981.
Carcinoma of Breast During Pregnancy. M. Weinstein and M. Roberts. —p. 993.
Interlocked Twins. D. D. Friedman.—p. 995.
*Spasm of Urethra Preventing Withdrawal of an Urethral Catheter. A. A. Johnson, C. Ney and H. Provet.—p. 997.

Varicose Veins, A Chronic Disease.—Varicose veins form part of a hereditary syndrome of generalized fascial weakness. The tendency toward the regrowth of varicose veins is inborn and cannot be eliminated by any known method of treatment. Not a single permanent cure has been secured by either surgical treatment or injection, or by any combination of these methods, in the experience of 20 years. Many reports of favorable results are based on an insufficient follow-up; recurrences have sometimes been observed as long as eight years or more after apparently successful treatment. Lymphedema is a frequent complication of vein surgery and should be studied more carefully; if lymphedema is found to occur in a significant proportion of cases, it will be necessary to conclude that surgical treatment of varicosities is inadvisable. The venous circulation is abundantly supplied with secondary channels and this safety factor, which protects the body in the event of trauma, works against any successful treatment of varicose veins; the reaction produced by therapy aimed at their elimination is the same as that produced by injury. Communicating and anastomotic changes immediately begin, and fresh varicosities may appear in the newly developed secondary circulation. Conservative treatment by sclerotherapy remains the treatment of choice, but since the condition is chronic, it can only be held in check by periodic examinations and supplementary injections as needed. No patient should ever be discharged as cured.

Urethral Spasm Preventing Withdrawal of Catheter.—Three patients, one with spastic paraplegia and two with benign prostatic hypertrophy, were subjected to urethral catheterization for routine residual urine determination. Severe urethral spasm was initiated by the procedure and made withdrawal of the catheter impossible. Experience in the first case, in which the catheter was actually broken off at the external sphincter so that the remaining portion had to be removed with a foreign-body forceps, showed that some method of securing complete relaxation of the urethra was needed to solve the problem. External heat, antispasmodic drugs, general or block anesthesia, and various other methods might be used, but since the cases reported occurred in the office and rectal diathermy was readily available, it was tried in the other two cases and proved successful.

53:1033-1144 (May 1) 1953

Epidermolysis Bullosa Due to Sulfonamides. D. Bloom.—p. 1077.
Carcinoid Tumor of Rectum: Report of Three Cases. B. W. Warner. —p. 1082.
Hookworm Infection as Diagnostic Problem in New York City. A. J. Weil.—p. 1085.
Fungicidal Action of Thorium X on Hairs Infected with Microsporon Audouini. S. Monash, J. J. Sher, E. F. Traub and I. I. Lubowe. —p. 1087.
Psychopathic Personalities: Failures and Criminals. B. Liber.—p. 1088.
*New Nervous Pathway for Ménière's Disease. S. Rosen.—p. 1095.
A Half Century of Hormones. R. Colp Jr.—p. 1098.
Ectopic Pregnancy. J. T. Kane and F. X. Haines.—p. 1101.
*Fatal Anaphylaxis in Bronchial Asthma Following Administration of Penicillin: Report of Two Cases with Autopsy Findings. T. J. Curphey. —p. 1107.
Failure of Routine Precordial V Leads in Diagnosis of Myocardial Infarction. I. Hirshleifer, S. I. Fishman, G. Schwartz and A. Fankhauser.—p. 1111.
Report on Death of Patient with Convulsive Seizures During Treatment of Rheumatoid Arthritis with Cortisone, ACTH, and Postpartum Plasma. D. T. Bonham.—p. 1114.
Case of Bell's Palsy Followed by Herpes Zoster Oticus. A. J. McSweeny. —p. 1118.

New Nerve Pathway for Ménière's Disease.—Rosen demonstrates that Ménière's disease is not localized exclusively in the internal ear but that other nerve structures and pathways are involved. Patients in whom the isolated chorda tympani nerve was subjected to electrical stimulation under local anesthesia reported hearing such sounds as "hissing, buzzing, roaring, ringing, and bubbling," and some experienced vertigo similar to that of Ménière's disease. Hearing and vestibular functions were preserved in 14 patients with Ménière's disease after sectioning of the chorda tympani alone or together with Jacobson's tympanic plexus. Vertigo ceased in 11 patients and persisted in two. Tinnitus disappeared in one, in seven it was no longer annoying, and in six it was unaffected. In one patient in whom the chorda had been sectioned three years before, the hearing returned to a useful high level and remained so, and tinnitus and a sensation of fullness were almost absent. The author points out that the chorda tympani nerve continues upward from the geniculate ganglion as the nervus intermedius. The chorda tympani and the nervus intermedius are a part of the same sensory system, and may be regarded functionally as one nerve, namely, the chorda intermedius. The intermedius communicates with the vestibular branch of the eighth cranial nerve in the internal auditory canal, then continues centrally to join the tractus solitarius, and ends in th seventh sensory nucleus in close relationship with the vestibular and cochlear nuclei. By this pathway, impulses along the chorda intermedius could affect the vestibular function peripherally and both vestibular and cochlear functions centrally. This pathway explains the results of chorda tympani stimulation (vertigo and tinnitus), and also the cessation of vertigo and relief of tinnitus following section of the chorda tympani in Ménière's disease. The author describes two patients with severe Ménière's disease in whom section of the chorda tympani was followed by cessation of vertigo and almost complete cessation of tinnitus. Rosen feels that the discovery of this new pathway will stimulate further investigation and may in turn reveal other structures involved in Ménière's phenomenon. Sectioning of the chorda tympani eliminated vertigo and relieved tinnitus in Ménière's disease, while preserving hearing and vestibular functions.

Fatal Anaphylaxis Following Administration of Penicillin to Asthmatic Persons.—The author reports two fatal cases due to anaphylaxis following intramuscular injection of penicillin in patients with long-standing bronchial asthma and previous sensitization to penicillin. The first patient complained of tightness in her chest three minutes after she had been given an intragluteal injection of 300,000 units of aqueous procaine penicillin. Despite administration of epinephrine, she died five minutes after the penicillin had been given. She had had bronchial asthma for many years, and had been hospitalized for treatment on nine separate occasions, several times in status asthmaticus, requiring injections of ether in oil. She had received many injections of penicillin solution for attacks of sinusitis and pharyngitis. During the past year she had received aqueous procaine penicillin 300,000 units on three or four occasions without ill effect, but there was a history of allergy to penicillin in oil. The second patient was a 63-year-old man with asthma and bronchiestasis of long standing. He had received aerosol penicillin prior to 1947. In December, 1951, he was given an intramuscular injection of 400,000 units of crystallin penicillin and 0.5 gm. of streptomycin in distilled water. Following this he complained that he was having great difficulty in breathing. He had a convulsion and died 8 to 10 minutes after the injection. In case 1 autopsy showed hyperventilation of all pulmonary lobes, with changes similar to changes in anaphylactic death of guinea pigs and in contrast with those usually seen in dogs, rabbits, and humans. Of greater interest still is the unusual paucity of microscopic alterations. If knowledge of the clinical history and the circumstances surrounding the death had been lacking in case 1, it is questionable whether a diagnosis of anaphylaxis could have been made unless it were based on the gross appearance of the lung. Examination of the organs in case 2 established an allergic tendency, because of the marked eosinophilic infiltration in the lungs, the spleen, and the bone marrow. Another point of interest is the absence of smooth muscle hypertrophy of the bronchial walls in both cases.

Ohio State Medical Journal, Columbus

49:377-472 (May) 1953

Epiploic Appendages as Cause of Abdominal Symptoms: Report of Three Cases and Brief Review of Literature. W. Furste and J. M. Rini. —p. 401.
Intestinal Obstruction Due to Impacted Gallstones. I. H. Einsel.—p. 406.
Photographic Evidence of Improvement After Stellate Ganglion Block Treatment of Acute Cerebrovascular Accident. W. R. Chambers. —p. 409.
Practical Considerations in Culdoscopy. E. Eichner.—p. 410.
Amyloidosis, Secondary to Syphilis. C. S. Kellog.—p. 413.
Keeping Up with Medicine. J. Forman.—p. 414.
Psychiatric Practice. J. M. Kenyon.—p. 415.

Postgraduate Medicine, Minneapolis

13:383-486 (May) 1953

I. Effect of Adrenals in Allergy: II. Effect of Cortisone in Clinical Allergy. L. H. Criep.—p. 383.
Role of Surgery in Peptic Ulcer. A. Horwitz.—p. 391.
Toxemia of Pregnancy: Outline of Treatment. S. T. Garber.—p. 402.
Misconceptions Leading to Delay in Diagnosis of Intracranial Space-Taking Lesions. W. R. Chambers.—p. 405.
Fallacy in Allergy. A. A. White.—p. 410.
Papilloma of Bladder. W. J. Engel.—p. 423.
Surgery in Poliomyelitis in Infancy and Childhood. W. T. Mustard. —p. 428.
New Approach to Increasing Tolerance to Oral Aminophylline. G. Cronheim, T. T. Justice Jr. and J. S. King Jr.—p. 432.
Trilobectomy and Lingulectomy for Bronchiectasis. W. P. Kleitsch. —p. 435.
Clinical Experience with Tryptar in Treatment of Infected Wounds. J. M. Miller, B. H. White and P. H. Long.—p. 438.
Hepatic Cirrhosis and Its Complications. C. W. Legerton Jr.—p. 449.
Pregnancy and Labor in Cardiac Patient. R. A. Reis.—p. 454.
Myocardial Infarction—Evolutionary Process. W. M. Johnson.—p. 459.
Use of Mineral-Enriched Meats as Substitute for Milk in Various Clinical Conditions. M. R. Ziegler.—p. 461.
Significance of Hepatomegaly in Infants and Children. G. B. Logan. —p. 469.

Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

82:365-546 (March) 1953. **Partial Index**

Effect of Repeated Doses of External and Internal Irradiation on Structure of Spleen. H. Goldie, G. J. Tarleton Jr., B. R. Jeffries and P. F. Hahn.—p. 395.
*In Vitro and In Vivo Activity of Candicidin on Pathogenic Fungi. A. M. Kligman and F. S. Lewis.—p. 399.
Phagocytosis Influenced by Bacterial Culture Medium. E. M. Lerner II and J. Victor.—p. 414.
Hematologic Studies on Dogs Receiving Low Doses of Total Body Irradiation. F. J. Ragaz and H. J. van Baaren.—p. 419.
Effect of Cortisone on Mumps Antibody Formation in Rabbits. J. R. Overman and R. Hanan.—p. 427.
Renal Function During Positive Pressure Respiration. P. K. Knoefel, C. A. Handley and R. A. Huggins.—p. 430.
*Poliomyelitis Virus in Human Blood During "Minor Illness" and Asymptomatic Infections. D. M. Horstmann and R. W. McCollum.—p. 434.
Prothrombin Activity of Blood of Newborn. A. J. Quick and C. V. Hussey.—p. 449.
Growth of Poliomyelitis Viruses in Large Stationary Cultures. C. A. Miller—p. 450.
Electron Microscopic Examination of Inclusion Bodies of Herpes Simplex Virus. C. Morgan, S. A. Ellison, H. M. Rose and D. H. Moore. —p. 454.
Pulmonary Tumors in Strain A Mice Exposed to Mustard Gas. W. E. Heston.—p. 457.
Influence of Pregnancy Upon Hypertension Induced in Rats by Sodium Chloride and Desoxycorticosterone. E. W. Page and M. B. Glendening. —p. 466.
Passive Immunity in Poliomyelitis. VI. Antibody Decline in Rhesus Monkeys Inoculated with Homologous Lansing Antiserum. W. Wood, E. M. Clark, F. T. Shimada and others.—p. 487.
Oral Administration of Co^{60} Vitamin B_{12} in Pernicious Anemia. L. M. Meyer.—p. 490.
Effect of Complete Hepatic Vein Ligation on Portal Pressures and Ascites Formation in Dogs with Portal-Caval Shunts. F. S. Cross, F. L. Raffucci, R. W. Toon and O. H. Wangensteen.—p. 505.
Eosinophile in Human Skin Homografting. B. O. Rogers, J. M. Converse, A. C. Taylor and R. M. Campbell.—p. 523.

Action of Candicidin on Pathogenic Fungi.—The water-soluble fraction of candicidin was tested for antifungal activity in vitro against rapidly growing yeast-like fungi, such as Cryptococcus neoformans and Candida albicans, and against slower-growing fungi, such as Histoplasma capsulatum and Coccidioides immitis. It was found to have strong antifungal activity in vitro against the major fungus pathogens of man, with the exception of C. immitis and the ringworm fungi. In experimental fungus infection in white mice the different lots of candicidin available varied in antifungal potency and in toxicity, presumably because candicidin is still an impure substance. The results must, therefore, be considered as provisional. The preparations of candicidin used in these experiments afforded marked protection in moniliasis, blastomycosis, and sporotrichosis of mice. There was a significant but perhaps not strikingly protective effect in histoplasmosis and torulosis under the conditions of the experiment. The course of experimental coccidioidomycosis was not affected by this antibiotic. Candicidin appears to be a promising therapeutic agent because it possesses both fungicidal and fungistatic properties, but in its present state of purification, candicidin is too toxic to be injected subcutaneously or intramuscularly. Preliminary studies have shown that it is not absorbed orally. In humans the only possible route of administration would be intravenous infusion of dilute solutions by slow drip. A potential use of candicidin would be the prevention of development of a yeast-like fungal flora in the gastrointestinal tract of those receiving such antibiotics as aureomycin, oxytetracycline (Terramycin), and chloramphenicol. The simultaneous administration of candicidin with the orally administered antibacterial antibiotics may possibly suppress the development of a Candida flora. Preliminary studies in mice indicate that this is possible.

Poliomyelitis Virus in Human Blood.—Poliomyelitis virus was isolated from the blood of four children in one family during a poliomyelitis epidemic in Ohio in 1952. Three of the children had characteristic clinical pictures of the minor illness or abortive poliomyelitis, and one was asymptomatic. All were found to have virus in the throat and feces as well as in the blood. In none did signs or symptoms of the major illness appear, either paralytic or nonparalytic. As with a similar case that had been reported earlier, all of the children were excreting virus in the stools at the time it was found in the blood. Evidence is thus accumulating that viremia can occur in the human infection as it does in chimpanzees and cynomolgus monkeys, and, as with the latter, it is not associated with the clinical appearance of central nervous system signs but occurs several days earlier in association with the minor illness, or in the asymptomatic infection probably several days after exposure. Whether or not viremia can occur also in the incubation period of the single or double phase illness has not yet been demonstrated. In any event, the presence of viremia early in the course of human, as well as experimental, infection supports earlier hypotheses of rapid virus multiplication outside the central nervous system. Whether this multiplication occurs in neural or non-neural elements is not as yet certain. Different opinions are cited and the authors feel that the problem can only be resolved by demonstrating directly the early presence or absence of virus in various neural and non-neural tissues after administration of the virus by various routes.

82:547-800 (April) 1953. **Partial Index**

Comparative Study of Epinephrine and Epinephrine-Like Substance Obtained from Autolyzing Adrenal Glands. R. G. Roberts and D. M. Hilker.—p. 556.
Enhancement of Canine Isohemagglutinin A by Heat Labile Serum Factor, Probably Complement. F. Stohlman Jr.—p. 562.
Induction of Diabetes Insipidus in Adrenalectomized Dogs with Cortisone. W. W. Swingle, E. J. Fedor, M. Ben and others.—p. 571.
Evaluation of Agar Dilution Method for Determination of Sensitivity of Bacteria to Antibiotics. W. E. Schatten and R. F. Parker.—p. 574.
Augmentation of Nitrogen Mustard Induced Leukopenia by Cortisone. B. Levine and A. S. Weisberger.—p. 580.
Effect of Motor Cortex Ablations on Reflex Myoclonus in Monkeys. C. Lombroso and J. K. Merlis.—p. 591.
Effects of p-Aminosalicylic Acid on Thyroid and Adrenal. T. Wong, J. R. Hogness and R. H. Williams.—p. 598.
Simple Direct Method for Absolute Basophil Leucocyte Count. J. E. Moore III and G. W. James III.—p. 601.
*Production of Pituitary Tumors in Mice by Chronic Administration of Thiouracil Derivative. G. E. Moore, E. L. Brackney and F. G. Bock. —p. 643.
*Determination of Deuterium Exchange Rates Between Maternal Circulation and Amniotic Fluid. A. A. Plentl and D. L. Hutchinson.—p. 681.
Gonadotropins of Pituitary Gland and Urine of Adult Human Male. R. C. Bahn, N. Lorenz, W. A. Bennett and A. Albert.—p. 777.

Pituitary Tumors in Mice Caused by Propylthiouracil.—Data are presented on four mice treated for 18 months with a diet to which propylthiouracil was added. On examination, three of the four mice had chromophobe adenomas of the anterior lobe of the pituitary. All four mice had carcinomas of the thyroid.

Exchange Rates Between Maternal Circulation and Amniotic Fluid.—The origin, the rate of formation, and the fate of amniotic fluid are controversial subjects. Morphological studies of cellular structures involved did not reveal why large amounts of amniotic fluid are formed in certain pathological states nor could it explain the rapid rate of replacement in the normal pregnant organism as demonstrated by Flexner and his associates. These authors concluded that the amniotic fluid is completely replaced once every 2.9 hours. Such a rapid turnover rate is contrary to the prevailing opinion that the amniotic fluid represents a stagnant pool. Regarding the pregnant organism as a multicompartmented system, the authors decided to determine the exchange rate of the water in amniotic fluid with the water of the maternal and fetal systems. By the application of transabdominal catheters, placed into the amniotic sac of pregnant women at term, amniotic fluid could be withdrawn at desired intervals without disturbing the continuity of the system. The mechanism of tracer (deuterium) exchange was demonstrated to be that demanded by theory, and the application of well-known theoretic equations to the data so obtained permitted the calculation of absolute exchange rates. In two experiments where the isotopic tracer was first placed in one compartment (mother) and then in the other (amniotic fluid), the exchange rates in both directions were found to be about 600 cc. per hour. The observations of Flexner and his associates on the exchange rate of the water of the amniotic fluid are thus confirmed in principle.

Psychiatric Quarterly, Utica, N. Y.

27:1-184 (Jan.) 1953 **Partial Index**

Some Principles of Brief Psychotherapy. W. Bonime.—p. 1.
Fluctuation of Danish Psychiatric Admission Rates in World War II: Initial Decrease and Subsequent Increase (Trends in Psychiatric Hospital Admissions 1939-1948). B. B. Svendsen.—p. 19.
Carbon Dioxide Therapy. G. A. Silver.—p. 52.
Duration of Hospitalization, Readmission Rate and Stability of Diagnoses in Veterans Hospitalized with Neuropsychiatric Diagnosis. R. L. Jenkins, E. L. Bemiss Jr. and M. Lorr.—p. 59.
Value of Early Memories in Psychotherapy. R. J. Kahana, I. H. Weiland, B. Snyder and M. Rosenbaum.—p. 73.
Preliminary Study on Use of Flaxedil (Gallamine Triethiodide or Tri-[diethylaminoethoxy] benzene trioethyliodide). J. F. Neander and S. P. Alexander.—p. 83.
Family Setting and Social Ecology of Schizophrenia. D. L. Gerard and L. G. Houston.—p. 90.

Psychoanalytic Review, Albany, N. Y.

40:99-196 (April) 1953. **Partial Index**

Modified Psychoanalytic Therapy in Senescence. G. J. Wayne.—p. 99.
Self-Reporting in Group Psychotherapy. W. C. Hulse and R. G. Reens.—p. 117.
Psychology of Herman Melville. C. Kligerman.—p. 125.

Public Health Reports, Washington, D. C.

68:361-452 (April) 1953. **Partial Index**

*Effect of Fly Control on Diarrheal Disease in Area of Moderate Morbidity. D. R. Lindsay, W. H. Stewart and J. Watt.—p. 361.
The 1952 Encephalitis Outbreak in California. W. L. Halverson, W. A. Longshore Jr. and R. F. Peters.—p. 369.
Time Study of Public Health Activities in Mississippi. J. A. Milne, M. E. Rice, J. B. Hozier and G. B. Taranto.—p. 378.
Maternal and Child Health Services: Challenges and Aims. L. Baumgartner.—p. 397.
Cardiovascular Syphilis in General Medical Clinic. S. P. Lucia, V. C. Harp Jr. and M. L. Hunt.—p. 405.
Public Health in Indonesia. E. R. Jenney.—p. 409.
Trichinosis. V. B. Link, J. H. Steele, B. Schwartz and others.—p. 416.
Trichinosis Control and Vesicular Exanthema. J. C. Haldeman, J. H. Steele and R. J. Van Derwerker.—p. 421.
Hospital Beds in United States in 1953. J. W. Cronin, M. E. Odoroff and L. M. Abbe.—p. 425.
An Experiment with Group Conferences for Weight Reduction. A. L. Chapman.—p. 439.

Effect of Fly Control on Diarrheal Disease.—In an earlier investigation in Hidalgo County, Texas, flies were shown to be vectors of Shigella infections in an area with a high incidence of diarrheal disease. This paper presents the results of a study, very similar to the Texas study, made in an area of low to moderate morbidity from diarrheal disease. The area is in southern Georgia; its small communities are characteristic of the rural South in size, climate, and agricultural practices favorable to fly breeding, and in community sanitation that allows flies ready access to human excrement. Results of this study demonstrated that during effective fly control in an area of moderate diarrheal disease morbidity, the prevalence rate of Shigella infections and the morbidity rate from diarrheal disease were significantly lowered. Chemical insecticides of the residual type were used for control of adult flies. The development of housefly (Musca domestica) resistance to the DDT initially used resulted in its ineffectiveness in maintaining fly control after 10 months. The dieldrin and chlordane sprays substituted for DDT resulted in excellent fly control for about three months. After that period these insecticides became even less effective than DDT. The fact that the period of effective fly control was the only time during the 32 months of this study that the prevalence rate of Shigella infection was significantly lower in the treated towns than in the untreated towns is convincing evidence that flies were vectors of Shigella organisms.

68:453-548 (May) 1953. **Partial Index**

Poliomyelitis Distribution in the United States. R. E. Serfling and I. L. Sherman.—p. 453.
Fog and Deaths in London, December 1952. J. A. Scott.—p. 474.
Looking Back to Look Ahead in Rural Health. F. S. Crockett.—p. 480.
*Climate and Endemic Dental Fluorosis. D. J. Galagan and G. G. Lamson Jr.—p. 497.
United States Pharmacopeia. L. C. Miller.—p. 510.
National Formulary. J. L. Powers.—p. 513.
New and Nonofficial Remedies. R. T. Stormont.—p. 515.

Climate and Endemic Dental Fluorosis.—The range of fluoride concentration most effective in preventing dental caries was established at approximately 1.0 to 1.5 ppm. These fluoride levels were determined from observations made principally in the Midwest, where mean annual temperatures are approximately 50 F (10 C). A probable relationship between fluoride concentration and climate is now being observed in instituting fluoridation of water supplies. For example, in Wisconsin, 1.3 ppm, is recommended, and in Florida, 0.7 ppm. Studies were made on the prevalence and severity of endemic dental fluorosis in 726 children in six Arizona communities in a desert area, with mean annual temperatures of approximately 70 F, mean relative humidities of approximately 37%, and extremely high daytime temperatures. In these Arizona communities concentrations of fluoride above 0.8 ppm. resulted in objectionable dental fluorosis; concentrations of 0.6 to 0.8 ppm. resulted in an occasional diagnosis of fluorosis; concentrations below 0.6 ppm. did not cause objectionable fluorosis. Arizona children drink more water than children living in more temperate climates because of climatic influences, and as a result, there is increased ingestion of fluoride in relation to the concentration found in the water. Comparisons of the fluorosis indexes in the Arizona communities with those in midwestern communities revealed that fluorosis occurs at about twice the intensity in Arizona than it does in the midwestern area with comparable fluoride concentration but different climatic factors.

Radiology, Syracuse, N. Y.

60:485-640 (April) 1953

Differential Diagnosis of Chronic Perforating Carcinoma of Colon. C. A. Stevenson and A. W. Sommer.—p. 485.
Double-Contrast Examination of Colon. J. B. Douglas.—p. 490.
*Routine Search for Colonic Polyps by High-Voltage Radiography. C. Gianturco and G. A. Miller.—p. 496.
*Dilute Contrast Media in Diagnosis of Lesions of Colon. R. M. Potter.—p. 500.
Double-Contrast Examination of Colon with Special Emphasis on Studies of Sigmoid. R. D. Moreton.—p. 510.
*Reduction of Ileocecal Intussusception by Hydrostatic Pressure. B. R. Girdany, L. W. Bass and G. W. Grier.—p. 518.
Detection of Early Carcinoma of Stomach: An Evaluation of Roentgen Examination of Patient with Gastrointestinal Symptoms. F. J. Bonte and H. L. Friedell.—p. 527.
Annular Pancreas. A. R. McGee, L. W. Black and H. Beattie.—p. 532.
Roentgen Features of Pulmonary Tuberculoma. C. C. Wang.—p. 536.
Roentgen Amniography: Valuable and Safe Aid to Obstetrical Diagnosis. E. M. Savignac.—p. 545.
Left Atrial Calcification: Report of Eight Cases Verified at Surgery for Relief of Mitral Stenosis. J. L. Curry, J. S. Lehman and E. C. H. Schmidt.—p. 559.
Malignant Lesions of Tonsil. D. B. Parshall and K. W. Stenstrom.—p. 564.
Late Effects of Thorotrast in Tissues. A. P. Prezyna, W. W. Ayres and W. C. Mulry.—p. 573.
Lethal Dose of Whole-Body Tantalum^{182} Gamma Irradiation for Burro (Equus Asinus Asinus). J. H. Rust, J. L. Wilding, B. F. Trum and others.—p. 579.
Plastic Vaginal Cylinder: Accessory to Expanding Cervico-Uterine Radium Applicator. E. C. Ernst, E. C. Ernst Jr. and R. P. Ernst.—p. 583.
Roentgenographic Study of Transitory Synovitis of Hip Joint. L. Drey.—p. 588.
Palm Thorns as Cause of Joint Effusion in Children. R. G. Karshner and W. Hanafee—p. 592.

Search for Colonic Polyps by High-Voltage Radiography.—Routine proctoscopy and high-voltage roentgen examination of the colon may be expected to show colonic or rectal polyps in approximately 10% of adult patients, regardless of symptoms. Some polyps are malignant when first discovered and others may undergo malignant change; consequently, their early detection and treatment will prevent the development of a substantial number of cancers of the large intestine. The high-voltage technique requires a barium mixture just dense enough to be fully opaque when fluoroscopy is conducted at 80 or 85 kv. A mixture of this density will become radiographically transparent at 120 to 130 kv. The high-voltage radiographic exposure should be such as to show one loop of the colon through another. Polyps will appear as translucent shadows when the density of the barium is properly balanced against the quality of the roentgen rays. Preparation of the patient is extremely important because translucent shadows

may also be caused by gas or fecal material. A diagnosis of colonic polyp is made only if the shadow is shown by two separate examinations. Routine use of high-voltage radiography for one year (March, 1951, to March, 1952) in 1,552 patients resulted in the discovery of polyps in 42 (2.7%). Almost the same incidence was reported by Lawrence (2.8% in 7,000 autopsies). Radiography, however, cannot be relied on for the discovery of rectal polyps, which can best be found by proctoscopy. The proctoscopic study may be limited to the length of the rectum and is almost free from discomfort. Its importance may be seen from the fact that when it was carried out as a routine measure in 365 patients, it resulted in the discovery of 28 rectal polyps (7.6%).

Dilute Contrast Mediums in Diagnosis of Lesions of Colon.—Early and accurate diagnosis of small lesions, particularly those of a polypoid type, offers the best hope for successful treatment of cancer of the colon. Statistics indicate that lesions of the colon or the rectum will be multiple in from 30 to 40% of all cases. The finding of a single polyp should lead to a careful search of the entire bowel above the range of direct vision. A good outline of the filled colon, both fluoroscopically and on the roentgenograms, can be obtained by using a contrast medium of lesser density (4½ oz. [135 gm.] of barium sulfate to a quart [a liter] of water with suitable suspending agents) than that ordinarily employed, while at the same time displacement of the medium by small intraluminal masses will be clearly shown on films made with high kilovoltage technique (85 to 100 kv.). Numerous lesions less than 1 cm. in diameter can be detected by this method. The sharpness of the fluoroscopic image with a barium enema suspension of this density depends on the volume of barium distending the lumen. Any region where the bowel will not distend is an area of interest to the examiner and an indication for film studies. Any area of lessened density where the barium is displaced in the lumen of the bowel is considered suggestive of an intraluminal mass; if it appears on the film with similar size, shape, and position or if a pedicle is demonstrated, a polypoid lesion must be considered. The diagnosis should rest on repeated examinations in which the lesion is repeatedly demonstrated. Examination of the colon by this method will not only reveal small lesions but will also show all the other details usually sought for in routine barium enema studies.

Reduction of Ileocecal Intussusception by Hydrostatic Pressure.—Hydrostatic pressure by barium enema, properly used, is the treatment of choice for ileocecal intussusception in infants and young children. It has been used routinely in 27 infants from 3 months to 3 years old during the past two years at the Children's Hospital of Pittsburgh and was successful in 22. Surgery was needed to complete the reduction in four cases, and one child who was in critical condition when admitted died the following day although the intussusception had been completely reduced. Successful use of this method requires the patient to be under constant physical control. A 6 in. (15 cm.) nonelastic bandage is wrapped around the legs; a piece of stockinette of the appropriate size is pulled over the arms; and immobilization is completed by heavy sandbags placed on either side of the body. Retention of the barium enema is assured by inserting an ungreased Bardex catheter, child's size, into the rectum and using adhesive tape to keep the buttocks in close apposition. Neither the patient nor the examiner should be unduly exposed to radiation and the use of adhesive tape makes it unnecessary for an assistant to keep his hand in the field of direct radiation. The immobilized infant is usually quiet and often sleeps during the intervals between recurrent colicky abdominal pains. The gastric contents are aspirated, and a thin barium-water mixture is then allowed to flow into the colon from an enema can 3 ft. (1 m.) above the table. The progress of the enema is followed under fluoroscopic observation. Gentle manipulation may safely be used to aid in the reduction, which is considered complete when the barium mixture flows freely through the ileocecal valve into the terminal ileum. Failure of reflux does not necessarily mean that reduction is incomplete, but if a good flow is absent, the most conclusive roentgen sign of complete reduction is lacking. The clinical condition of the patient is then evaluated and if it indicates that reduction has been completed, 8 or 10 hours may be allowed to elapse before the decision for surgical intervention is made. Operation will be required if signs of intestinal obstruction persist after hydrostatic reduction. Duration of symptoms for more than 12 hours does not in itself contraindicate an attempt at hydrostatic reduction, but caution is needed when signs of intestinal obstruction and shock are present. Dehydration and shock must be treated before any method of reduction is tried. Manifest signs of peritonitis are indications for surgical treatment. Roentgenologists fully acquainted with the clinical aspects of intussusception and expert in the technique and evaluation of its hydrostatic reduction will be prepared, with the surgeon, to assume responsibility for its diagnosis and first treatment; those with less experience should carry out the surgeon's instructions, leaving all important decisions to him.

Review of Gastroenterology, New York

20:281-352 (May) 1953

SYMPOSIUM ON BLEEDING ESOPHAGEAL VARICES AND THE PROBLEM OF PORTAL HYPERTENSION

Portal Systemic Shunts in Management of Portal Hypertension with Massive Gastrointestinal Hemorrhage. J. W. Lord Jr.—p. 295.
Clinical Evaluation of Ligation of Hepatic and Splenic Arteries in Treatment of Cirrhosis of Liver. J. L. Madden.——p. 300.
Physiology and Pathology of Cirrhotic Liver. M. A. Payne.—p. 302.
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Present Status of Radioisotopes in Gastroenterology. L. A. Erf.—p. 314.
Postcholecystectomy Syndrome. R. Upham.—p. 321.
Submucosal Gastric Hematoma: Complication of Vacuum-Tube Biopsy Technic. E. D. Palmer and V. M. Smith.—p. 330.

Southern Medical Journal, Birmingham, Ala.

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*Fumagillin as an Amebacide: Preliminary Report. G. McHardy, J. E. Bechtold, G. E. Welch and D. C. Browne.—p. 428.
Detection of Carcinoma of Stomach in Patients with Pernicious Anemia: Review. R. M. Bird.—p. 434.
Clinical Selection and Preoperative Preparation of Patients with Mitral Stenosis for Surgical Treatment (Commissurotomy). D. W. Chapman, R. H. Skaggs, I. M. Johnson and others.—p. 439.
Elective Proctologic Surgery in the Aged. B. R. Jackson.—p. 442.
*Non-Malignant Roentgen Changes in Gastro-Intestinal Tract Associated with Aging. E. L. Pirkey, L. A. Pilla and D. E. Pipkin.—p. 446.
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Bleeding in Recurrent Low Grade Diverticulitis of Sigmoid. H. G. Bell. —p. 453.
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Surgical Management of Emphysematous Blebs and Bullae. F. N. Cooke and B. Schaff.—p. 474.
Complications of Hip Prostheses Application. E. G. Lipow.—p. 481.
Treatment of Tumors of Testes. J. C. Kimbrough and A. A. Borski. —p. 486.
Study of Fetal Mortality in Cesarean Section. J. A. King, E. L. King and M. B. Pitt.—p. 491.

Fumagillin as an Amebicide.—The crystalline form of fumagillin, derived from Aspergillus fumigatus, proved in in vitro tests to be an effective amebicide both in the presence and in the absence of mixed bacterial flora. In vivo studies in experimentally infected laboratory animals revealed surprising innocuousness and tolerance of greater than therapeutic doses. In tolerance trials on 10 volunteer students, the authors started with daily doses of 10 mg. and increased this by increments of 10 mg. to a maximum of 100 mg. daily. Anorexia occurred with doses of 30 mg., and nausea and abdominal discomfort with 60 mg. Mild diarrhea occurred in some with 70 mg. doses, and mild vertigo occurred in most cases with doses over 60 mg. The authors used fumagillin in 134 ambulatory patients. Requirements for treatment with fumagillin was identification of Endamoeba histolytica cysts or trophozoites in

stools obtained by diarrheal defecation, saline purgation, or proctosigmoidoscopy. Three examinations at monthly intervals, including tests on stools obtained by purgation and proctosigmoidoscopic and radiographic evidence of ulcer healing when there was initial ulceration, were required to establish eradication of amebiasis. Sixty-four cases satisfied all requirements and are evaluated. These included 12 cases of acute amebic ulcerative colitis, 18 of chronic amebic ulcerative colitis, and 34 in which there were no symptoms but Endamoeba histolytica organisms were found. In 22 patients in whom amebic ulceration was present on initial proctosigmoidoscopic examination, complete healing resulted. One single large rectosigmoid ulceration persisted but no amebas were present. In nine patients significant roentgenographic findings subsided completely after therapy. Other parasites such as Trichomonas, Trichuris, and Giardia organisms were also largely eradicated, but Ascaris and Strongyloides parasites were not greatly influenced. Endamoeba organisms other than histolytica were eradicated in some patients. The authors conclude that fumagillin is amebicidal for intestinal amebiasis.

Nonmalignant Changes in Gastrointestinal Roentgenograms of Aged Persons.—Pirkey and associates point out that many nonmalignant conditions are often seen in elderly persons. The esophagus is the site of a change in innervation that is manifested in elderly persons by a process known as tertiary contractions. Aortitis with increased tortuosity of the aorta and associated periaortic scar tissue will produce esophageal displacement, which may be sufficient to cause difficulty in swallowing. This is usually on an arteriosclerotic or syphilitic basis. Swallowing of large boluses of food because of dental disorders by older persons is thought to contribute to production of pulsion diverticula of the esophagus. Traction diverticula of the esophagus result from scar tissues pulling on the esophagus from the adjacent lymph nodes at the tracheal bifurcation. The commonest nonmalignant roentgenologic change in the stomach of elderly patients is that of hiatus hernia in which the esophageal hiatus is relaxed and a varying amount of the stomach enters the opening. Duodenal diverticula are very commonly seen on roentgenograms. Diverticula of the jejunum are uncommonly reported. Many elderly patients with vague gastrointestinal complaints have a coarse small intestinal pattern with clumping of the barium and loss of the normal mucosal pattern. This may be due to avitaminosis. Volvulus of the colon may occur, and usually involves the sigmoid portion; volvulus of the cecum is less common. The commonest change seen in the gastrointestinal tract of the aged is diverticulosis. Diverticula are asymptomatic but may be the site of complications, such as inflammation, perforation, fistula formation, and bleeding. Correct diagnosis and the institution of proper treatment in these nonmalignant conditions will frequently be lifesaving.

Surgery, St. Louis

33:639-798 (May) 1953

New Instruments for Cardiac Surgery. A. M. Dogliotti and G. Guglielmini.—p. 639.
Autologous Tissue Tubes for Aortic Grafts in Dogs. E. C. Peirce II.—p. 648.
Abdominal Aortic Aneurysm: Resection with Preservation of the Lumen. T. G. Barnes and G. H. Yeager.—p. 658.
Ligation of Hepatic and Splenic Arteries for Advanced Periportal Cirrhosis. J. A. Witter and M. First.—p. 663.
Exposure Method in Treatment of Severe Second and Third Degree Burns. L. M. Rousselot, J. F. Connell Jr. and W. P. Whalen.—p. 673.
Relation of Pancreas to Blood Coagulation. J. Storer and P. Kazdan.—p. 683.
Spinal Complications Following Lumbar Puncture: Review of Literature and Report of Four Cases. S. F. Redo.—p. 690.
Extending Zone of Resection for Carcinoma of Rectum and Sigmoid. V. C. Waite.—p. 702.
Stainless Steel Mesh Prosthesis for Immediate Replacement of Hemimandible. J. N. Attie, A. Catania and C. B. Ripstein.—p. 712.
Studies in Utilization of Fructose Administered Intravenously in Man. J. M. Beal, J. L. Smith and P. M. Frost.—p. 721.
Clinical Experiences in Use of N-Allylnormorphine (Nalline) as Antagonist to Morphine and Other Narcotics in Surgical Patients. J. Adriani and M. Kerr.—p. 731.

Surgery, Gynecology and Obstetrics, Chicago

96:509-628 (May) 1953

Argument for Preoperative Radiation in Treatment of Breast Cancer. C. L. Ash, V. Peters and N. C. Delarue.—p. 509.
Arterial Embolism with Notes on Operative and Anticoagulant Therapy. W. C. McGarity and R. L. Robertson.—p. 522.
Experimental Production of High Interventricular Septal Defects: Physiological and Pathological Study. J. H. Kay, V. Thomas and A. Blalock.—p. 529.
*Fate of Recurrent or Persistent Parotid Tumors. D. P. Slaughter, H. W. Southwick and L. Walter.—p. 535.
Hyperchloremic Acidosis: Study of Mechanism in Ureterosigmoidostomy. A. W. Bohne and C. E. Rupe.—p. 541.
Review of Effectiveness of Early Treatment in Breast Cancer. A. S. Kraus.—p. 545.
Control of Infections Associated with Obliterative Arterial Disease. C. W. Howe and W. C. Wigglesworth.—p. 553.
Effect of Leg Traction on Ruptured Intervertebral Discs. S. F. Rothenberg, H. A. Mendelsohn and T. J. Putnam.—p. 564.
Postoperative Intestinal Obstruction. W. S. McCune and J. M. Keshishian.—p. 567.
*Treatment of Esophageal Varices by Transesophageal Obliteration. G. Crile Jr.—p. 573.
Blood Iodine Levels in Pregnancy and Abortion. K. P. Russell.—p. 577.
Effect of Polyvinylpyrrolidone in Obstetrical Cases. A. C. Posner, J. W. V. Cordice Jr. and J. Scudder.—p. 581.
Wound Healing in the Uterus. O. W. Hess.—p. 584.
Ligation of Hepatic and Splenic Arteries in Treatment of Cirrhosis of Liver. J. L. Madden.—p. 594.
Contractures of Iliotibial Band. E. W. Johnson Jr.—p. 599.
Production by Liquid Nitrogen of cute Closed Cerebral Lesions. R. A. Clasen, D. V. L. Brown, S. Leavitt and G. M. Hass.—p. 605.
Experimental Evaluation of Pulmonary Function and Lung Substance Distal to Transection or Resection of Tracheobronchial Segments. L. B. Kiriluk, W. A. Ricker Jr. and K. A. Merendino.—p. 617.

Parotid Tumors.—Slaughter and associates review observations on 212 patients with tumors of the parotid gland, which included 124 benign mixed tumors (60% of the total) and 55 malignant tumors (26%). About 15% of the parotid swellings investigated surgically were benign lesions not classified as mixed tumors. Thirty-six, or nearly one-third, of the 124 mixed tumors were recurrent after surgical treatment when first seen by the authors. These recurrent tumors were essentially of the ordinary or "average" mixed tumor type, without marked cellularity and with relatively abundant myxomatous stroma and occasional "cartilaginous" areas. In contrast, the malignant tumor group included 12 that probably originated from preexisting mixed tumors. In eight of these for which previous excisional material was available for study, the original tumor was highly cellular, of unusual cell pattern, or of a suggestively atypical cell type, but none of them justified originally a diagnosis of cancer. Recurrence was probably due to incomplete excision, and the growth characteristics of the residual tumor became cancerous. The rare lymphosarcomas and an occasional hemangioma may be indications for radiation therapy, but all other parotid tumors are surgical problems. The authors agree with the modern concept that no benign parotid tumor should be enucleated, but that either a superficial lobectomy or a total parotidectomy should be done. Superficial lobectomy should suffice for the majority of mixed parotid tumors, total parotidectomy being required only occasionally for tumors of the deep lobe. Since clinically innocent lesions may be malignant, every parotid tumor should be identified before the patient leaves the operating room. This means that frozen sections should be examined at once. If an infiltrating malignant tumor is diagnosed, then a total parotidectomy should be performed, with sacrifice of the facial nerve, because if the surgeon does not remove it or any other involved tissue, the tumor will. When cervical node metastases are present, a radical neck dissection should be done.

Treatment of Esophageal Varices by Transesophageal Obliteration.—Crile reported in 1950 preliminary results in seven children and young adults who had bled frequently and severely from esophageal varices and who were treated by transesophageal ligation of the esophageal veins. These patients had normal livers, the varices being the result of a congenital block of the portal or the splenic vein. Since the report, two additional cases have been treated in this manner and the original seven patients have been observed for up to 48 months since the operation. Only two of the nine patients bled after the operation; one had two small hemorrhages soon after

the operation and has had none since; the other appears to be bleeding from a gastric ulcer. It appears, therefore, that transesophageal ligation of esophageal varices is safe in dealing with esophageal varices that are secondary to extrahepatic blocks of the portal or the splenic vein, and that in these cases the radical operation consisting of resection of the lower esophagus and the upper part of the stomach, which involve high mortality and morbidity, is not necessary. Transesophageal ligation of esophageal varices is much like a hemorrhoidectomy. The three large veins look like the three large groups of hemorrhoids. The control of bleeding after their obliteration appears to be as complete as after a hemorrhoidectomy. Although hemorrhoids occasionally do recur, the recurrences result from incomplete operation rather than from the formation of new channels. Since a good hemorrhoidectomy usually affords permanent relief, removal of the rectum to control bleeding from hemorrhoids is not considered. If bleeding from esophageal varices can be as readily controlled by obliteration of the esophageal veins, it is hoped that resection of this area will be as unnecessary as removal of the rectum for hemorrhoids. There have been no deaths or serious complications following transesophageal ligation of esophageal veins. The operation has not yet been tried in patients with esophageal varices secondary to cirrhosis of the liver.

Tennessee State Medical Assn. Journal, Nashville

46:121-158 (April) 1953

Task Ahead. A. M. Patterson.—p. 121.
"Shall We Coast Now—Or Forge Ahead?" D. W. Smith.—p. 125.
Physiology in Daily Practice of Surgery. J. M. Hardy.—p. 127.
Treatment of Hyperemesis Gravidarum. S. C. Cowan Jr. and R. C. Stuntz.—p. 132.
Management of Thyroid Disease. L. W. Trent.—p. 135.
Vitamin-D Poisoning. A. Weinstein.—p. 140.

Texas Reports on Biology and Medicine, Galveston

11:1-178 (No. 1) 1953. **Partial Index**

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Failure to Demonstrate Virus in Vagus Nerves of Patients with Chronic Recurrent Duodenal Ulcer. E. D. Palmer and R. L. Reagan.—p. 46.
Role of Spleen in Resistance to Experimental Tumors. M. Pollard and R. Bussell.—p. 48.
Complement Fixation Reactions in Serum Hepatitis. M. Pollard and R. Bussell.—p. 58.
Electron Microscopic Studies of Virus of Varicella (Chicken Pox) from Monkey Serum. R. L. Reagan, W. C. Day, S. Moore and A. L. Brueckner.—p. 74.
Electron Microscopic Studies of Herpes Simplex Virus After Propagation in Swiss Albino Mouse. R. L. Reagan, F. M. Sansone, S. Moore and A. L. Brueckner.—p. 79.
Biochemical and Biophysical Mehods in Cardiovascular Research. R. F. Redmond, L. J. Milch, W. W. Calhoun and others.—p. 83.
Acute Anemia Produced by Phenylhydrazine Hydrochloride in Duck: Observations on Nucleated Erythrocytes in Vivo. R. H. Rigdon.—p. 110.
Rapid Procedure for Determining Relative Antibiotic Sensitivities of Microorganisms. D. E. Singer, L. V. Pierce, E. C. Yawn and others.—p. 122.
Use of Polyvinylpyrrolidone as Plasma Volume Expander in Preventing or Combating Shock. A. O. Singleton, Jr.—p. 138.
*Survey of Typhus in Rats and Rat Ectoparasites in Galveston, Texas. R. W. Strandtmann and D. J. Eben.—p. 144.

Typhus in Rats and Rat Ectoparasites.—A survey of murine typhus among rats and ectoparasites of rats was conducted in Galveston, Texas, from February, 1945, through July, 1947. Only brown rats (Rattus norvegicus) were captured. The complement fixation test on rat bloods gave the following results: In 1945, blood of 63% of 141 rats was positive for typhus; in 1946, blood of 58.8% of 131 rats was positive; and in 1947, blood of 32.7% of 110 rats was positive. The 1947 reduction was probably due to a city-wide DDT dusting program which materially reduced the number of rat fleas. Small lots of ectoparasites brushed off the rats that had been anesthetized with chloroform were inoculated intraperitoneally into laboratory animals to test for typhus. Species tested were the oriental rat flea (Xenopsylla cheopis), the common rat flea (Leptopsylla segnis), the stick-tight chicken flea, the cat flea, Nuttall's rat mite (Laelaps nuttalli), the tropical rat mite (Bdellonyssus bacoti), and the louse. Results showed that the oriental rat flea is probably the chief vector of typhus among rats. Dusting rat runs and rat harborages with DDT materially reduced the number of fleas without materially affecting mites and lice. The reduction in the number of fleas was accompanied by a reduction in the number of rats with positive blood and also a pronounced reduction in the number of cases of human typhus. Seasonal variation in abundance was not apparent in the oriental rat flea, but the common rat flea definitely decreased in late summer and fall. The tropical rat mite also decreased in number during summer and fall, but Nuttall's rat mite was equally abundant throughout the year. Lice were the most numerous and most evenly distributed rat ectoparasites. There was no apparent seasonal variation in their abundance.

Texas State Journal of Medicine, Fort Worth

49:205-270 (April) 1953

Treatment of Oral Cavity Cancers: Present Status of Radiotherapy. G. H. Fletcher.—p. 209.
Carcinoma of Esophagus: Surgical Treatment. W. D. Seybold.—p. 214.
*Multiple Primary Cancer of Bowel, Bladder, and Skin. C. Phillips.—p. 219.
Carcinoma of Cecum: Acute Appendicitis as Presenting Symptom. J. F. Thomas.—p. 222.
Diagnosis of Spinal Cord Tumor. S. R. Snodgrass.—p. 227.
Lactating Adenoma of Breast. A. J. Gill, J. A. Stirman and C. E Gordon.—p. 231.
Malignant Neoplasia of Normally Situated and Heterotopic Lymphoid Tissue and Its Numerical Microscopic Grading. A. C. Broders.—p. 234.
Studies on Inheritance of Hemophilia by Laboratory Tests. J. M. Hill, G. Crass, J. Ellis and K. P. Wittstruck.—p. 241.

Multiple Primary Cancers.—One in 20 patients with cancer of the large bowel seen at the Scott and White Clinic in Temple, Texas, had another cancer in the large bowel either simultaneously or subsequently. In another study of 1,202 patients with cancer of the large bowel, it was found that new malignant neoplasms developed in other organs and sites in 8% of the cases. In the 10 year period ending with 1950, 100 patients were observed with cancer of the bladder microscopically verified, and 39% of these were multiple primary cancers. Of over 5,000 individual lesions of skin cancer observed over a 20 year period, all microscopically verified, multiple primary lesions were observed in 25%. In the bowel, bladder, and skin most cancers are accessible for diagnosis by palpation and modern roentgenologic and endoscopic techniques. Multiple primary cancers may occur in any of the organs named simultaneously, in sequence, or later in separate organs. Recognition of the importance of these facts affects case histories, treatment, and prognosis and is an important element in cancer control.

U. S. Armed Forces Med. J., Washington, D. C.

4:639-794 (May) 1953. **Partial Index**

Treatment of Pulmonary Complications Secondary to Upper Respiratory Infections. R. Denton, E. A. Keller, A. A. Hoffman and J. A. Jarman.—p. 643.
Practical Value of Cardiopulmonary Function Tests. A. A. Siebens, M. M. Newman, G. A. Smith and C. F. Storey.—p. 653.
Gastric Diverticulum and Transthoracic Approach. J. B. Seaman.—p. 665.
Management of Acute Head Injury. J. A. Jarman.—p. 673.
Preventive Psychiatry in Combat Zone. A. J. Glass.—p. 683.
Muscle-Conditioning Machine. R. W. Augustine, L. M. Kuehler, W. E. Landmesser Jr. and others.—p. 693.
Simultaneous Recording of Electromagnetic Ballistocardiogram and Electrocardiogram on Single Channel. M. H. Green.—p. 699.
Epidemiologic Study of Tuberculosis in Civilian Employees. J. R. Mathews.—p. 711.
Modification of Ileocolostomy, with Exclusion Operation for Terminal Ileitis. H. F. Bertram.—p. 715.
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Unusual Complications of Trocar Cystostomy. A. A. Borski and J. C. Kimbrough.—p. 729.
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Spontaneous Rupture of Umbilical Hernia. E. J. Rupnik and R. B. Brown.—p. 747.
Management of Truamatic Cysts of Mandible. S. L. Orlean and A. Gottlieb.—p. 751.
Favorable Response of Atypical Hemophilia to Calcium. H. Kramer, W. N. Donovan and M. F. Beard.—p. 761.
Isospora Infection in Man. W. H. Wells and A. J. Bucki.—p. 769.
Extravasated Metallic Mercury Simulating Osteomyelitis. V. B. Vare Jr.—p. 773.

FOREIGN

Acta Chirurgica Belgica, Brussels

52:195-334 (March) 1953

Vascular Grafts and Artery Bank: Experimental Study. E. Henrotin and R. Veroft.—p. 197.
Sequelae of Wrist Fractures. R. Soeur.—p. 231.
*Leriche Syndrome: Resection of Aortic Bifurcation. Result After Two and One-Half Years. J. Cahen.—p. 247.
*Pathogenesis and Surgical Treatment of Obliteration of Aortic Bifurcation. P. van der Linden.—p. 258.
Experimental Contribution to Study of Methods of Surgical Treatment of Arterial Obliteration. M. van der Ghinst.—p. 271.

Leriche Syndrome: Resection of Aortic Bifurcation.—Obstruction of the aortic bifurcation may occur suddenly as the result of embolism, or it may develop slowly and insidiously as part of a thrombotic process involving the iliac arteries. Ready fatigability and general atrophy of the legs, cramps in the calf muscles, pallor of the feet and legs even in a standing position, absence of a pulse in the femoral or dorsalis pedis arteries, and sexual impotence characterize the syndrome as a whole, but in the early stages of the disorder the symptoms may be so mild that they are disregarded. The progress of the disorder depends on the length of time it takes the obstruction to become complete, the condition of the rest of the arterial system, the relative importance of the compensatory collateral circulation, and possible supervening spasms of the vessels, but sooner or later, unless surgical treatment can be successfully carried out, gangrene will develop. Treatment must be individualized; high sympathectomy gives excellent results in some cases, but is being largely replaced by resection of the bifurcation, procedures designed to remove the clot from the vessels, and arterial grafts. Restoration of the circulation by a graft is the treatment of choice when the arteries are free from lesions, but when atheromatous plaques and calcifications are present resection is indicated. Follow-up of a 51-year-old patient incapacitated by this syndrome who was treated by resection of the bifurcation two and one-half years earlier showed that he was able to work regularly again; he could climb stairs and walk without discomfort; his feet no longer felt cold; and he had gained 8 kg. in weight.

Pathogenesis and Surgical Treatment of Obliteration of Aortic Bifurcation.—Obliteration of the aortic bifurcation may be caused by an embolus; by an obstruction limited to the bifurcation and apparently dependent on a preexisting stenosis; or by the upward extension of obstructions in the femoral and iliac arteries. Embolism of the aortic bifurcation requires immediate surgical treatment if the patient's death from gangrene is to be prevented. Patients with stenosis of the bifurcation usually complain of vague pains in the legs and buttocks on effort or after long walks; they may have subjective hypothermia of the extremities; their sexual potency is sometimes reduced; and wasting is often observed in the muscles of the thighs and pelvis. Aortography shows irregularity at the lower end of the aorta and marked narrowing at the origin of the iliac arteries. These phenomena are probably due to the atheromatous lesions often found in this area. Lumbar sympathectomy at this stage of the disorder may be ineffective and psychologically injurious; a patient in whom complete obliteration of the bifurcation developed after sympathectomy refused further operation and, while still able to live a life of retirement, is incapacitated for work. Surgical treatment, either bilateral sympathectomy or resection of the bifurcation, is most successful when obliteration of the stenotic vessels has taken place gradually, because in such cases the compensatory collateral circulation has had time to develop. Obliteration resulting from ascending lesions may be either rapid or gradual; when it is rapid, the clinical picture resembles that of embolism and bilateral amputation becomes inevitable. Resection with sympathectomy is the only active treatment possible when the extension of the obstructive lesions has been gradual, but the results are often deceptive and the final outcome may be no better than that obtained by letting nature take its course.

Archives of Disease in Childhood, London

28:81-160 (April) 1953

Some Radiographic Manifestations of Early Scurvy. J. F. Brailsford.—p. 81.
Four Cases of Acute Acquired Haemolytic Anaemia in Childhood Treated with A.C.T.H. B. S. Rose and S. N. Nabarro.—p. 87.
*Two Cases of Congenital Mitral Stenosis Treated by Valvotomy. B. D. Bower, J. W. Gerrard, A. L. D'Abreu and C. G. Parsons.—p. 91.
Ectopic Ossification in Tuberculosis Meningitis. J. Lorber.—p. 98.
Idiopathic Hypoproteinaemic Oedema and Amino-Aciduria in an Infant. J. P. Bound and W. R. Hackett.—p. 104.
*Fatal Generalized Vaccinia with Failure of Antibody Production and Absence of Serum Gamma Globulin. S. E. Keidan, K. McCarthy and J. C. Haworth.—p. 110.
Congenital Toxoplasmosis in Newborn. E. G. Hall, J. D. Hay, P. D. Moss and M. M. P. Ryan.—p. 117.
Mandibulofacial Dysostosis in an African Infant. S. Wayburne.—p. 125.
Neonatal Diphtheria. M. Curtin.—p. 127.
Infantile Hypertrophic Pyloric Stenosis Recurring After Rammstedt's Operation. N. K. Macrae-Gibson and B. L. Coles.—p. 130.
Blood Glucose Changes in Newborn: 1. The Blood Glucose Pattern of Normal Infants in First 12 Hours of Life. R. D. G. Creery and T. J. Parkinson.—p. 134.
Comparative Study of Circulating Eosinophil Level in Babies. Part II: In Full Term Infants. J. M. Burrell.—p. 140.
Muscle Fibres in Children's Stools. J. L. Emery.—p. 143.
Retroperitoneal Teratoma in Infancy. D. Charles.—p. 147.
Encephalopathy Following Diphtheria-Pertussis Inoculation. J. M. Sutherland.—p. 149.
History of Infant Feeding: Part I. Primitive Peoples: Ancient Works: Renaissance Writers. I. G. Wickes.—p. 151.

Congenital Mitral Stenosis Treated by Valvulotomy.—Congenital mitral stenosis, without any other associated anomaly, is reported in a 9½-month-old boy and with coexistent patent ductus arteriosus in a 5½-year-old girl. Mitral valvulotomy was performed on both patients. The diagnosis was confirmed at operation in both, and also by necropsy in the boy, who died suddenly during feeding 36 hours after the intervention. A history of recurrent pulmonary infection and dyspnea in both patients and of congestive heart failure in the boy was suggestive. A classic presystolic murmur and accentuated slapping first sound confirmed the diagnosis, but these signs were variable so that the diagnosis seemed doubtful. No significant enlargement of the left auricle was revealed by roentgenologic examination. The electrocardiogram showed right ventricular preponderance, which is common at the age of the patients, but it also showed an abnormal P-wave in both cases. Cardiac catheterization was not of direct aid in the diagnosis, but it excluded septal defects and confirmed the presence of a silent ductus arteriosus in the girl besides showing extreme pulmonary hypertension in both patients. Angiocardiography was useful in both patients, by showing a large left atrium with stasis lasting for several seconds in the boy and by showing the ductus arteriosus and the direction of the blood flow in the girl. Selection of suitable cases for valvulotomy is important, since this surgical intervention should add many years to the life of a patient with a well-functioning left ventricle. The commoner condition of unequal division of the common atrioventricular canal may not be benefited. Digital exploration of the stenosed valve was possible in the older patient. An attempt at commissurotomy had to be made blindly by passing a valvulotome through a small incision in the auricular appendage of the younger patient. The latter method can never be so precise as that following digital exploration, but the case of the boy proved that it is feasible. Both these young hearts stood the surgical intervention extremely well.

Fatal Generalized Vaccinia.—A fatal case of generalized vaccinia is reported in an 11-week-old baby girl. Secondary lesions developed around the vulva and the anus and on the dorsum of the left hand two weeks after vaccination against smallpox, and widespread cutaneous lesions appeared on the right hand and the face until death occurred five weeks later. In the course of a normal vaccination, virus-neutralizing antibodies appear in the blood at about 12 to 14 days and continue to rise until about the 21st day, when they attain a steady level. Such neutralizing antibodies failed to develop in the serum of the authors' patient and electrophoretic analysis showed complete absence of gamma globulin. Treatment with penicillin and aureomycin was ineffective, as were transfusions of blood from recently vaccinated donors and intramuscular administration of 750 mg. of gamma globulin. It

would seem that hyperimmune animal serums or convalescent serum from a recent case of smallpox should be given in large doses at frequent intervals. The possibility of replacement transfusions should be considered if serum is not available.

Archives des Maladies du Coeur, Paris

46:289-384 (April) 1953. Partial Index

Pulmonary Arterial Hypertension After Ligation of One or More Pulmonary Veins: Experimental Study. A. Van Bogaert, E. Fannes, L. Buytaert and others.—p. 289.
*Reformation of Mitral Stenosis After Commissurotomy. E. Donzelot, C. Dubost, R. Heim de Balsac and others.—p. 300.
Tetralogy of Fallot with Pulmonary Arterial Hypertension. L. Provenzale.—p. 310.
Variations of Residual Air in Course of Mitral Stenosis. L. Mathieu, J. P. Grilliat and P. Pillot.—p. 341.

Reformation of Mitral Stenosis After Commissurotomy.—The results of commissurotomy depend principally on the condition of the valves—whether they are still supple and only slightly deformed, or have become thickened, rigid, and incrusted, on the degree of inflammation in the tissues, on changes in the chordae tendineae or the papillary muscles, and on the precise location and extent of the newly created aperture. The position of the aperture in the commissural region, the more or less irregular edges produced by the tearing or severing of the valvular tissues, and latent or reactivated inflammatory processes localized in the valves all favor postoperative reformation of the stenosis. Factors relied on to prevent reformation are chiefly the greater amplitude of valvular movement produced by commissurotomy and the resulting increase in the volume and rapidity of the blood flow. Postoperative reclosure of a severely damaged mitral valve was proved at autopsy in the case of a 29-year-old woman subjected to commissurotomy for severe cardiac disability. The postoperative course was uneventful, and the patient's condition was at first greatly improved, but dyspnea recurred on the 15th day and was followed by severe pulmonary edema. Heart failure on the right became pronounced and in spite of treatment with heart stimulants, mercurial diuretics, and anticoagulants, the patient grew steadily worse until on the 28th postoperative day she died. Autopsy showed that the commissurotomy opening in the valve was solidly closed and capable of resisting pressure from a finger trying to re-enter the narrowed mitral orifice. Reclosure was brought about chiefly by organization of a clot superimposed upon inflammatory foci, some of which were old and sclerotic and some quite recent. The authors believe that while the mitral valves probably frequently reclose after commissurotomy, they usually are only partially stenosed, so that most patients derive real, though variable, benefit from the procedure.

Archivum Chirurgicum Neerlandicum, Arnhem

5:1-80 (No. 1) 1953. Partial Index

Surgical Treatment of Isolated Aortic Valve Stenosis. E. J. Moeys.—p. 27.
Importance of Pancreatico-Duodenectomy in Treatment of Tumors in Region of Head of Pancreas and Vater's Papilla. M. W. Van Weel.—p. 31.
New Ways of Controlling Postoperative Pain. L. A. Boeré.—p. 46.
*Renal Injuries. W. F. Suermondt and J. W. Ijdens.—p. 52.
Cardiospasm. W. F. Suermondt.—p. 59.
Observations on Resection in Treatment of Malignant Skeletal Tumours. M. J. Kingma.—p. 64.

Renal Injuries.—Follow-up investigations on 57 patients from 1 to 20 years after they had sustained retroperitoneal renal injuries that were treated conservatively revealed that the late disturbances in the damaged kidney were minimal. The authors feel that early surgical intervention is indicated only if the renal injury is accompanied by increasing pain and tenderness in the flank and by the clinical symptoms of severe hemorrhage, shock, anemia, and a drop in the blood pressure. All other retroperitoneal renal injuries should be treated conservatively. Intravenous urography should be carried out as soon as possible after the accident. Every patient who has sustained a renal injury should be followed up carefully so that suitable treatment can be given early enough in the rare cases in which serious complications arise later.

British Journal of Dermatology, London

65:157-194 (May) 1953

An Attempt at a Physiopathological Explanation of Seborrhoea and Acne Vulgaris: Therapeutic Results. R. Aron-Brunetière.—p. 157.
Werner's Syndrome. R. Reed, R. H. Seville and R. N. Tattersall.—p. 165.
Psychiatric Observations on Facial Dermatoses. I. Macalpine.—p. 177.

British Medical Journal, London

1:1007-1062 (May 9) 1953

Premenstrual Syndrome. R. Greene and K. Dalton.—p. 1007.
Premenstrual Tension Syndrome and Its Treatment. L. Rees.—p. 1014.
Bright's Disease: An Attempt at a Statistical Assessment of Classification Proposed by Ellis. J. B. Enticknap and C. L. Joiner.—p. 1016.
*Recanalization of Thrombosed Arteries Under Anticoagulant Therapy. H. P. Wright, M. M. Kubik and M. Hayden.—p. 1021.
Metabolic Changes Associated with Operation. I. W. MacPhee.—p. 1023.
Annular Pancreas. B. F. Swynnerton and N. C. Tanner.—p. 1028.
Sliding Hernias Through Oesophageal Hiatus. G. Rios-Solans.—p. 1029.
Osteoid Osteoma. E. H. Strach.—p. 1031.

Recanalization of Thrombosed Arteries.—Thrombosis of the femoral artery was produced experimentally in 14 rabbits. Eight of the rabbits received ethyl biscoumacetate daily by mouth, starting 24 hours after the thrombus was formed. The remaining six animals served as controls. The time required for recanalization in control animals and in animals treated with anticoagulants was recorded by arteriography. Recanalization occurred in the animals treated with anticoagulants in an average of three and a half weeks, while the arteries of the controls were still occluded after several months. The effect of anticoagulant treatment depends on the maintenance of a low prothrombin level. The increased rate of recanalization observed in the treated animals is possibly due to the normally continuous action of fibrinolysin, which is usually masked by the continued deposition of small quantities of fresh fibrin on the thrombus surface. In the presence of an anticoagulant fibrin deposition is prevented. The action of the anticoagulant therefore appears to be indirect. Schmid and Stockinger observed that bishydroxycoumarin (Dicumarol), and ethyl biscoumacetate to an even greater extent, significantly depressed the growth and dividing power of fibroblasts in tissue culture. This effect was present even in the low concentrations found in the blood during anticoagulant therapy. It is therefore possible that the organization of the thrombus is modified by these drugs, and this plays a leading part in recanalization following arterial thrombosis. The conclusion seems justified that adequate prolonged treatment with bishydroxycoumarin in general and with ethyl biscoumacetate in particular has a favorable influence on the reabsorption of arterial thrombi, provided that therapy is started soon after occlusion has occurred. Such treatment may result in reopening of the occluded vessel when the obstruction is due to thrombotic and not to arteriosclerotic changes.

Edinburgh Medical Journal

60:201-248 (May) 1953

Surgical Treatment of Pulmonary Tuberculosis. G. Cruickshank.—p. 201.
Child Deaths in Edinburgh, 1901-51. J. M. Mair and H. P. Tait.—p. 212.
*Haematoma of Rectus Abdominis Muscle in Association with Pregnancy. J. A. Chalmers.—p. 223.
*Intermittent Acute Porphyria. J. G. Macleod and I. W. B. Grant.—p. 232.

Hematoma of Rectus Abdominis Muscle in Pregnancy.—Hematoma of the rectus abdominis muscle occurs apart from pregnancy, but is found three times more frequently in women than in men. The anatomy of the rectus abdominis muscle plays a part in the causation of the condition. It is divided by ligamentous septa into four muscle bellies, which are enclosed in a strong sheath except at the lower end posteriorly, where the inferior epigastric artery lies relatively unsupported; it is at this level that the hematoma occurred in the most serious cases. The patients affected are usually multiparas, and there has frequently been a rapid succession of pregnancies. Pregnancy is usually well advanced, and hydramnios or some other cause of over-distention of the abdomen may be present. Obesity is sometimes a factor, and muscle tone is usually poor. There is frequently a history of coughing, and chronic bronchitis or asthma may be present. The patient

complains of pain on one side of the abdomen that is usually initiated by severe coughing. Diagnosis is difficult. In Torpin's earlier series in many of the cases the condition was diagnosed as a concealed retroplacental hemorrhage, twisted ovarian cyst, ruptured uterus, or ectopic pregnancy. Treatment of the milder cases is usually conservative but pain and progressive hemorrhage may demand active intervention. Forty-five cases of hematoma of the rectus abdominis muscle have been reported in the literature, and four more cases are added. One very severe case was treated by evacuation of the clot from the rectus sheath and the other three were successfully treated by conservative means. There was no maternal mortality, but in the first severe case the fetus died in utero of anoxia. The condition is much commoner than is generally recognized. The minor cases respond well to rest in bed, particularly if the abdominal muscles are well supported and appropriate measures are taken in the treatment of the bronchitis. Surgical treatment should be undertaken early in severe cases or if there appears to be extension of the hematoma. Conservative treatment is more likely to be successful in cases where the upper rectus muscle with its complete sheath is concerned. Treatment of the pregnancy should be conservative, except where gross overstretching of the muscle is interfering with the management of the hematoma, and in such cases induction of labor or cesarean section may be indicated. Undue strain in labor should be avoided, and forceps delivery may be desirable.

Intermittent Acute Porphyria.—The authors report eight cases of intermittent acute porphyria observed in the Edinburgh district in recent years. Seven of the patients were women. The diagnostic difficulties are illustrated by the great diversity of the provisional diagnoses in these cases, e. g., abdominal and gynecological emergencies, nephritis, hematuria, uremia, psychoneurosis, motor neuron disease, and acute anterior poliomyelitis. Attention is drawn to the recurrent association of abdominal pain, constipation, apparent hysteria, peripheral polyneuropathy, and red urine in intermittent acute porphyria, which can be diagnosed by a simple chemical test. In a disease for which no specific treatment is available it is important to avoid drugs such as barbiturates and sulfonamides that may, as in several instances in this series, precipitate or aggravate the condition. Five patients died. The immediate prognosis of intermittent acute porphyria is bad in patients who develop peripheral polyneuropathy; of 5 such patients in this series 4 did not survive. The diagnosis, if not established clinically, cannot be made by the routine methods of autopsy, as the pathological changes both in the central nervous system and elsewhere in the body are indefinite. In the present series three of four patients showed a bluish discoloration of the kidneys at autopsy, but even this might have been disregarded if the diagnosis of intermittent acute porphyria had not been made during life. The condition can be recognized post mortem by inspection of the organs under ultraviolet light, which produces a pink or red fluorescence if porphyrins are present.

Internat. Arch. Allergy & Applied Immun., Basel

4:65-130 (No. 2) 1953. Partial Index

Solar Urticaria. G. Fidelsberger and W. Lindemayr.—p. 65.
Influence of ACTH and Cortisone on Experimental Antibody Production in Rabbits. S. Moeschlin, R. Báguena and J. Báguena.—p. 83.
*Antagonism Between Diabetes Mellitus and Allergic Diseases, Especially Bronchial Asthma. M. J. Gutmann.—p. 118.

Antagonism Between Diabetes Mellitus and Allergic Diseases.—Only 35 of 19,126 patients with diabetes mellitus mentioned in the literature had asthma. Gutmann found 5 diabetics among 2,000 patients with allergy. One patient had both asthma and diabetes, and in two patients asthma and diabetes alternated, so that, when the blood sugar level was above 150 mg. per 100 cc., attacks of asthma never occurred. Although among his 2,000 allergic patients there were only five with diabetes, there were 38 with a diabetic family history. He cites Rost to the effect that diabetic members of families with allergy were free from allergy and vice versa. In trying to explain the antagonism between diabetes and allergy, the author points out that, according to Kylin, fasting blood sugar levels in asthmatic patients are low, between 80 to 90 mg. per 100 cc. Low blood sugar levels were the most consistent findings in 92 patients with intrinsic asthma according to Christensen. Unger found that asthmatics who often have a low blood sugar level seem to be relatively immune to diabetes. Abramson demonstrated hyperinsulinism by six-hour glucose tolerance tests in a number of asthmatics. Derbes and Engelhardt observed temporary relief from asthma following the administration of dextrose. While placing special emphasis on the antagonism of diabetes and asthma, the author also considers other allergic disorders in their relationship to diabetes such as urticaria and Quincke's angioneurotic edema. Four of 12 patients with asthma treated with cortisone and corticotropin had glycosuria and hyperglycemia that made reduction of the doses or interruption of this treatment necessary. These four patients had diabetics in their families, but the remaining eight had no such history.

Journal of Endocrinology, London

9:127-250 (April) 1953. Partial Index

Characteristics of Dose-Response Line in Allen-Doisy Tests Obtained by Intravaginal Administration of Oestrone in Distilled Water and in 50% Aqueous Glycerol. J. D. Biggers.—p. 145.
Adrenocorticotrophin in Relation to Diabetogenic Activity of Growth Hormone Preparations. E. Reid.—p. 185.
On Morphology and Adrenaline-Nor-Adrenaline Content of Chromaffin Tissue. R. E. Coupland.—p. 194.
Further Studies on Sterilization of Female Albino Mice with Oestrogen. C. W. Emmens.—p. 204.
Mode of Action of Antithyroid Drugs: Results with Two In Vitro Tests. W. R. Pitney and T. R. Fraser.—p. 224.
Observations on Method of Measuring Adrenocorticotrophic Hormone in Plasma. C. H. Gray and D. M. V. Parrott.—p. 236.
Pettenkofer Reaction as Indication of Adrenocortical Activity. F. T. G. Prunty.—p. 244.

Journal of Physiology, London

120:1-256 (April) 1953. Partial Index

Hydroxytyramine and Adrenal Medulla. D. M. Shephed and G. B. West.—p. 15.
Electroretinogram of the Dog. H. B. Parry, K. Tansley and L. C. Thomson.—p. 28.
Role of Liver and Kidneys in Maintenance of Level of Free Choline in Plasma. J. Bligh.—p. 53.
Effect of Adrenaline and Noradrenaline on Liver Blood Flow. J. Grayson and D. H. Johnson.—p. 73.
Some Observations Upon Isolated Perfused Human Foetal Hearts. J. B. E. Baker.—p. 122.
Estimation of Antidiuretic, Vasopressor and Oxytocic Hormones in Pituitary Gland of Dogs and Puppies. S. E. Dicker and C. Tyler.—p. 141.
Histamine Release by Adrenaline and d-Tubocurarine in Human Subject. J. L. Mongar and R. F. Whelan.—p. 146.
'Visual Attention' and the α-Rhythm. E. G. Walsh.—p. 155.
Quantitative Study of Response to Acetylcholine and Histamine of Blood Vessels of Human Hand and Forearm. F. Duff, A. D. M. Greenfield, J. T. Shepherd and I. D. Thompson.—p. 160.
Experiments on Post-Contraction Hyperaemia of Skeletal Muscle. S. M. Hilton.—p. 230.
Vasodilator Activity in Extracts of Various Regions of Central Nervous System. G. W. Harris and P. Holton.—p. 254.

Lancet, London

1:911-958 (May 9) 1953

*Diagnosis of Acute Meningitis in Infancy. J. C. Haworth.—p. 911.
*Cortisone Treatment in Adrenogenital Syndrome. P. A. Bastenie, J. R. M. Franckson, M. Verbiest and others.—p. 915.
*Assessment of Portal Venous Hypertension by Catheterisation of Hepatic Vein. A. Paton, T. B. Reynolds and S. Sherlock.—p. 918.
Hereditary Spastic Paraplegia: Report of Family with Associated Extrapyramidal Signs. A. P. Dick and C. J. Stevenson.—p. 921.
Cortisone as an Adjunct to Surgery in Treatment of Keloids. P. Clarkson.—p. 923.
Keloid, a Hazard of Piercing for Ear-Rings. C. J. Cellan-Jones.—p. 926.
Chloramphenicol in Typhoid and Paratyphoid Fevers: New Lines of Treatment. A. H. El Ramli.—p. 927.
Chloramphenicol Levels in Serum After Rectal Administration. A. W. El Borolossy.—p. 928.

Diagnosis of Acute Meningitis in Infancy.—Although the prognosis in acute purulent meningitis in infancy has improved remarkably since the discovery and use of the sulfonamides and antibiotics, the fatality rate is still high. One of the factors causing the high mortality is delay in diagnosis. The classical clinical features, stiffness of the neck and spine and Kernig's and Brudzinski's signs, are often absent in the early

stages, or may appear at a time when treatment is no longer effective. Increased tension of the anterior fontanelle is a sign of utmost importance, but this, too, may be absent, especially if the baby is dehydrated. Haworth examined the records of the last 50 infants under the age of 12 months who were admitted to Alder Hey Children's Hospital with acute purulent meningitis. The infection was meningococcal in 24 and pneumococcal in 5; in 4 it was caused by Haemophilus influenzae, and in 5 by Bacterium coli; in 12 no organisms were isolated. Most of the unidentified infections were presumed to be meningococcal, many having been treated before admission. The chief symptoms recorded were vomiting, irritability, anorexia, drowsiness, and convulsions. The physical signs were neck rigidity, tense or bulging fontanelle, positive Kernig's sign, and a squint or "vacant look" of the eyes. Thirteen of the 50 infants showed none of the "classic" meningeal signs. Seven of the 13 cases were fatal. The review of the 50 cases supports the view that in infants with meningitis, convulsions signify a grave prognosis. The author makes a plea for routine prophylactic anticonvulsant therapy in this disease. Diagnostic lumbar puncture should not await the development of typical meningeal signs.

Cortisone in Adrenogenital Syndrome.—Franckson and co-workers report observations on six patients with the adrenogenital syndrome before and after treatment with cortisone. The following clinical benefits were observed: decrease of hair growth in one case, regression of masculine physique in three cases, development of breast tissue in two cases, return to normal menses in two cases, and unexpected occurrence of normal menstruation in a case of pseudohermaphroditism. In one case skin pigmentation resembling that of Addison's disease regressed. Excretion of urinary 17-ketosteroids was much reduced in all six patients. Chromatography showed that this reduction affected all the adrenal fractions of the urinary 17-ketosteroids, especially those that were present in great excess.

Assessment of Portal Venous Hypertension by Catheterization of Hepatic Vein.—Paton and associates point out that Myers and Taylor described a method of estimating portal venous pressure by measuring the pressure in a catheter blocking a hepatic vein and by recording pressures from catheters placed simultaneously in the portal and hepatic veins. Paton and co-workers extended the technique of hepatic vein catheterization to study portal venous pressure in patients with liver disease. Fasting patients were given 3 grains (0.2 gm.) of sodium amobarbital (Amytal) 30 minutes before catheterization. Under fluoroscopic control a radio-opaque nylon catheter was passed via the antecubital vein into the hepatic vein. The catheter was then advanced to the periphery of the liver until it met resistance about 10 cm. beyond the mouth of the vein. This was called the "occluded" position. Pressures were then recorded by a strain gage, the zero level being taken at a point 5 cm. below the sternal angle with the patient supine. Blood samples were taken from the occluded position for estimation of unsaturated oxygen, and the catheter was then withdrawn under fluoroscopic control about 5 cm. to the "free" position, where further pressure measurements and blood samples were taken. If possible, the catheter was inserted into more than one hepatic vein radicle to obtain comparable pressure records. Catheterization of a hepatic vein can be carried out in any center equipped for cardiac catheterization. The pressure obtained with a catheter occluding a hepatic vein does not differ significantly from that obtained directly from a portal-vein radicle, unless there is extrahepatic portal venous obstruction. The mean occluded hepatic venous pressure in 24 patients without liver disease was 6.8 mm. Hg. In 11 patients with portal cirrhosis the mean pressure was 22.0 mm. Hg. Raised values were also obtained in two patients with subacute hepatitis and in four patients with congestive heart failure. Normal values were found in 3 patients with extrahepatic portal venous hypertension and in 12 patients with obstructive jaundice (9 extrahepatic and 3 intrahepatic). Theoretical objections to the method do not invalidate its use in the clinical assessment of portal hypertension.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

97:921-982 (April 11) 1953. **Partial Index**

*Modern Concepts of Pathogenesis and Course of Heine-Medin's Disease. J. D. Verlinde.—p. 929.
Orthopedic Treatment of Acute Anterior Poliomyelitis. C. Schaap. —p. 936.
Reactions to Physical Exertion (Stress) in Patients with Bronchial Asthma and Behavior of Eosinophil Leukocytes. L. Koster and C. J. Alers. —p. 940.

Modern Concepts of Poliomyelitis Disease.—Verlinde argues that poliomyelitis can no longer be regarded as an exclusive neurotropic virus disease. Studies carried out during and after World War II proved that the virus is present in the pharynx, the gastrointestinal tract and feces not only in the paralytic, but also in the nonparalytic and abortive forms of poliomyelitis, and even in persons who have had contact with poliomyelitis patients. The majority of the persons who have the disease show extraneural lesions, such as involvement of the myocardium. Myocarditis and myositis may be induced in monkeys by various types of poliomyelitis virus. Hematogenous dissemination has been observed in these animals during the incubation period. Paralysis occurs only following neural spread, which is usually secondary, that is, it originates in the muscle tissue. The bulbar form of poliomyelitis following tonsillectomy, however, is the result of primary neural spread from the port of entry, the pharynx. The occurrence of paralytic forms following inoculation or physical exertion is probably explained by the fact that the virus present in these patients, following hematogenous dissemination, readily invades the muscles weakened by trauma or exertion for secondary neural spread.

Presse Médicale, Paris

61:661-680 (May 9) 1953

*Infections Caused by Pyocyaneus Bacillus in Children. R. Clément and L. Millard.—p. 661.
*Icterogenous Hepatitis Associated with Neurological Syndromes. J. Sterne. —p. 663.
The Problem of Syphilitic Balanitis. F. Pagès and J.-L. Freyria.—p. 665.

Pseudomonas Aeruginosa Infections in Children.—Pseudomonas aeruginosa infections are becoming more frequent as a result of changes in microbial flora brought about by the use of antibiotics. Antibiotic suppression of ordinary bacteria enables Ps. aeruginosa, which is resistant to most antibiotics, to develop more readily and to acquire greater virulence than would otherwise be the case. Its presence should never be disregarded, because it may lead to septicemia, meningitis, and necrotic or hemorrhagic lesions in the tissues. Conditions favorable to its development are found in children, especially those weakened by digestive disturbances, dietary deficiencies, or prolonged infections. Experiments on rabbits have shown that syndromes similar to those found in children can be produced by varying the method of inoculation; intravenous injection produces fatal septicemia, subcutaneous administration leads to the formation of eschars, and ingestion causes greenish diarrhea with intestinal ulcerations and necrosis of the liver. Ps. aeruginosa infection in children may be either general or localized; untreated general infections are always fatal. Meningitis is the most severe and persistent localized infection and still carries a high death rate, although antibiotic treatment has produced some improvement. The part played by Ps. aeruginosa in infantile diarrhea is not always clear, but when the bacillus is found in the stools, energetic treatment with diet, rehydration, and combined antibiotics should be instituted at once. Severe necrosis accompanies localized manifestations of Ps. aeruginosa, and when such infections are superimposed on burns, wounds, or eczematous lesions, they delay healing and favor suppuration. Dissemination from local foci may also result in generalized infection. Treatment is difficult, because the bacillus is resistant to most antibiotics in varying degrees; good results, however, can be obtained by using appropriate combinations of antibiotics or antibiotics and the sulfonamides, to which 45% of the strains are sensitive. The antibiotic of choice at the present time seems to be polymyxin B, but it must be used with caution because it has a toxic effect on the nerves and the kidneys.

Icterogenous Hepatitis with Neurological Syndromes.—Direct proof of the presence of poliomyelitis virus in patients with infectious hepatitis and involvement of the peripheral nervous system was obtained for the first time in two of five cases reported by the author. The neurological complications appeared abruptly during convalescence from jaundice in three cases. In one case jaundice followed a surgical procedure in connection with neurological examination, and in the other infection by a neurotropic virus was complicated by jaundice. Recovery from the hepatitis, which was of the usual type, took place in all cases. Regression of the neurological condition was noted in four patients, two being left with minimal sequelae and two with pronounced sequelae. Three years' follow-up of the other patient, however, showed that she still has a neurological syndrome with progressive tendencies. This patient's illness began after a stay at a beach known to be a center of poliomyelitic infection; at the same time, a pet dog that the patient had with her at the beach presented a progressive ataxia and amblyopia. Neurological complications accompanying infectious hepatitis are being reported with increasing frequency and are usually attributed to neurotropic properties acquired by the virus or viruses responsible for the hepatitis. The similarity of some of these complications (meningeal and paralytic, especially) to those found in poliomyelitis suggests that in certain cases infectious hepatitis may be caused by the poliomyelitis virus. Various clinical findings support this theory, and a study is now being made.

Revista Médica de Chile, Santiago

81:67-118 (Feb.) 1953. **Partial Index**

Pyelonephritis and Arterial Hypertension: I. Actual Status of Problem. R. Campos.—p. 67.
*Pyelonephritis and Arterial Hypertension: III. General Clinical Study, Prognosis and Treatment. O. Avendaño, M. Plaza de los Reyes and R. Orozco.—p. 74.
*Comparative Toxic Action of Streptomycin and Dihydrostreptomycin on Acoustic Nerve: Late Deafness Caused by Dihydrostreptomycin. R. Velasco L.—p. 79.

Pyelonephritis and Arterial Hypertension.—In a group of 57 patients with arterial hypertension observed by the authors, there were 25 with chronic pyelonephritis. The classic symptoms of diffuse glomerulonephritis were observed in one-half of these patients. In the remainder, hypertension and either urinary infection or edema were present. Renal insufficiency was observed in 15 patients. With antibiotic treatment the blood pressure became normal in 10 of 18 cases, pyuria cleared in 8 of 9, the urine became sterile in 5 of 14, the Addis test became normal in 7 of 13 cases, and the renal function became normal in 10 of 15. The authors conclude that chronic pyelonephritis is a frequent cause of arterial hypertension. The disease advances in four progressive phases: (1) localized focal infection, (2) development of pyelocystitis and lesions of the urinary tract, (3) diffuse glomerulonephritis with reversible lesions, and (4) renal sclerosis with renal insufficiency. The treatment consists of administration of antibiotics and surgical correction of anatomic abnormalities of the urinary tract, if any, in the course of the first, second, or third phases of the disease. In the fourth phase, the treatment is symptomatic only.

Effect of Streptomycin and Dihydrostreptomycin on Acoustic Nerve.—Velasco made a comparative study of the effects of streptomycin and dihydrostreptomycin on the acoustic nerve. Streptomycin given in daily doses of 1 gm. up to a total dose of 100 gm. or more to a large number of patients previously seen did not produce hearing disorders. In some cases it produced vestibular disorders that cautioned the physician to stop the treatment. The subjects of this report are six young adults who were given dihydrostreptomycin for pulmonary tuberculosis or for prevention or control of infection. The drug was given in daily doses of 1 gm. up to a total dose that varied from 28 to 70 gm. in tuberculous patients and from 6 to 8 gm. for prevention or control of an infection. None of the patients had dizziness or vertigo. The vestibular apparatus remained normal in all patients throughout the treatment. Bilateral hearing loss with tinnitus appeared between one and one-half and two and one-half months after discontinuation of the treatment and progressed for six months. The loss of hearing varied from 50% to complete deafness, even in patients who had received only a total of 6 or 8 gm. of the drug. Hearing loss and deafness did not progress after six months, but both conditions were permanent. The author states that dihydrostreptomycin in daily doses of 1 gm. is more toxic for the acoustic nerve than streptomycin in the same daily dose. He concludes that dihydrostreptomycin should be used only in cases of tuberculosis that does not respond to other antibiotics.

Semaine des Hôpitaux de Paris

29:1499-1532 (May 6) 1953

Present Status of Gastroscopy Apparatus and Suggested Improvements to Facilitate Endoscopy. C. Debray and P. Hausset.—p. 1499.
*Surgical Treatment of Cranial Stenosis: New Technique for Treatment of Oxycephaly. G. Desbuquois, G. Guiot and N. Poloukhine.—p. 1503.
Value of Radio-iodine Techniques in Physiopathological Study of Goiter in the Young. M. Berger, P. Guinet and R. Moret.—p. 1507.

Surgical Treatment of Cranial Stenosis.—Intracranial pressure caused by cranial stenosis in a boy of 15 was effectively relieved by a new surgical technique consisting of the creation of movable "cranial ribs." Diagnosis was based on the oxycephalic appearance of the skull and signs of cranial hypertension, which had been constantly increasing since their onset one year earlier. General anesthesia was obtained by intubation with the patient in the dorsal decubitus position and a large trephine opening to permit decompression was made in the temporal region on each side. Four smaller parasagittal openings were then made in the skull bilaterally, each being connected with the large opening on the same side by a cut through the bone made with a Gigli saw. A crosswise cut parallel with the longitudinal sinus was then made to free each "rib" at the top, just enough bone being left to hold it in place, and an additional crosswise cut was placed half-way down each rib to provide further flexibility. The expansion of the skull accompanying the cerebral pulsations following this procedure closely resembled the expansion of the thorax during inspiration. The postoperative course was simple and the patient left the hospital in good condition. Recent follow-up showed that he is now well and free from headaches and ocular disturbances; his skull is more normal in shape; his stature has increased; and he is making progress at school.

Tunisie Médicale, Tunis

41:223-356 (March) 1953. **Partial Index**

Edematous Forms of Nutritional Dystrophy in Infants: First General Study of 22 Tunisian Cases. M. Caruana, B. Hamza and H. Ghileb.—p. 265.
Case of Pyopneumopericardium. H. Bonan and H. H. Cohen.—p. 295.
*Typhoid Fever Treated with Cortisone and Chloramphenicol. R. Dana, G. Borsoni, V. Corcos and Others.—p. 307.

Typhoid Treated with Cortisone and Chloramphenicol.—The most striking effect produced by combined treatment with chloramphenicol (Chloromycetin) and cortisone in uncomplicated typhoid is the rapid decline in the temperature, which usually falls from 40 C to less than 37 C in from 12 to 24 hours. The pulse rate diminishes as the temperature falls, and at the same time the stupor disappears. Splenomegaly regresses. Complications in this series of 13 patients comprised three cases of encephalitis and one of severe intestinal hemorrhage. Encephalitis was noted in one patient during a relapse that occurred 24 hours after administration of cortisone was discontinued; use of penicillin and streptomycin in addition to the chloramphenicol relieved the clinical signs of the condition in 48 hours. Chloramphenicol and cortisone therapy was discontinued when encephalitis appeared in the other two patients; the authors' usual combined penicillin and streptomycin treatment with whole blood transfusions was substituted and proved effective. An intestinal hemorrhage that had begun in one patient before any treatment was started continued in spite of transfusions after chloramphenicol and cortisone therapy was instituted. Replacement of chloramphenicol and cortisone with the authors' usual treatment, to which in this case oxytetracycline (Terramycin) was added, resulted in cure. Relapses of varying severity occurred in five

patients, usually after a period of from three to five days, but ultimate recovery was complete in all cases. Cortisone offers real advantages when used as a supplement to chloramphenicol in the treatment of typhoid.

Ugeskrift for Laeger, Copenhagen

115:479-512 (March 26) 1953. Partial Index

*Epidermolysis Bullosa: Heredity, Prognosis and Incidence in Denmark. K. Bülow and A. Nørholm-Pedersen.—p. 479.
Respiratory Acidosis and Alkalosis. E. Henriksen.—p. 494.
Oxygen Therapy of Patients with Grave Pulmonary Emphysema and Fibrosis. E. Henriksen.—p. 496.

Epidermolysis Bullosa: Heredity, Prognosis, and Incidence in Denmark.—Bülow and Nørholm-Pedersen collected information on 27 families with 594 members, in 143 of whom epidermolysis bullosa or allied changes were established. There is no causal therapy. Four main forms are differentiated. 1. Epidermolysis bullosa simplex, with dominant inheritance, in most cases persists through life but tends to improve. It was found in 96 of 286 members of 10 families, who live mainly in two places in Denmark, Laesø and Vendsyssel. 2. Epidermolysis bullosa dystrophica differs morphologically from the simplex form and is often incapacitating and combined with other deformities. Inheritance is recessive, but milder dystrophic cases with mainly dominant inheritance are described. It was found in 31 of 200 members of 11 families. 3. Epidermolysis bullosa letalis was found in 9 cases of 67 members of 3 families; there were also two infants who died from congenital malformations. 4. Epidermolysis bullosa, temporary form, is of brief duration and has a good prognosis. It was found in 4 of 59 known members of three families.

115:513-552 (April 2) 1953. Partial Index

*Diabetic Nephropathy Illuminated by Renal Biopsy and Renal Function Tests. C. Brun, H. Gormsen, T. Hilden and others.—p. 513.
Succinylcholine Iodide in Electroshock Treatment. B. Ibsen and G. Paerregaard.—p. 531.
Differential Diagnosis in Physiotherapy. E. B. Hansen.—p. 532.

Diabetic Nephropathy Revealed by Renal Biopsy and Renal Function Tests.—Biopsy revealed diffuse glomerular changes in 6 out of 12 patients with diabetes mellitus, diffuse nodular changes in 4, and completely hyalinized glomeruli with remnants of noduli in 1. In one instance the renal tissue was normal, which invalidated the clinical diagnosis of diabetic nephropathy; the renal symptoms were later found to depend on cardiac insufficiency. In four cases without definite clinical signs of diabetic renal affection glomerular changes were demonstrated; they were diffuse in three cases and diffuse in the nodes in one case. Brun and his co-workers conclude that renal biopsy has a certain diagnostic value in diabetic nephropathy. Its value seems to be limited in differential diagnosis with regard to chronic pyelonephritis. The biopsies apparently support the theory that diabetic nephropathy starts as a diffuse hyalinization in the basal membranes of the glomerulus loops and that the nodular changes are a further development of the diffuse changes. Kidney function tests, which in themselves do not allow definite diagnostic conclusions as to the degree and nature of the diabetic nephropathy, suggest that glomeruli with marked changes due to diabetes in some cases have an essentially greater filtration ability than could be assumed from the histological picture.

Wiener medizinische Wochenschrift, Vienna

103:253-270 (April 4) 1953. Partial Index

Study on Influence of Polycarbonic Acids on Coagulation. S. Greif.—p. 254.
Operative Indications in Idiopathic Dilatation of Esophagus. R. F. X. Pellegrini.—p. 256.
*Herpes Zoster of Tongue and Palate and Its Neurological Complications. H. Stepan.—p. 258.

Herpes Zoster on Tongue and Palate.—The rare occurrence of herpes zoster on the left side of the tongue and on the palate is reported. There was pronounced impairment of taste in the two anterior thirds of the left half of the tongue, i. e., in the area of the lingual nerve, as well as in the posterior third of the tongue, i. e., in the area of the gustatory glossopharyngeal nerve. The patient, a 72-year-old woman, also had peripheral paresis of the facial nerve on the left side. One day before the development of the paresis of the facial nerve the patient had pain in the pinna that irradiated occipitally and towards the angle of the jaw. This pain may be considered as the prodromal manifestation of irritation in the area of the posterioauricular nerve. This nerve arises from the intermedian nerve, the cells of which are situated in the geniculate ganglion. The most important route of conduction of the sense of taste is through the lingual nerve, the chorda tympani, and the facial nerve to the geniculate ganglion. Many of the tasting fibers are commutated in the geniculate ganglion, and that alone may explain the severe disturbance of gustation in the area of the lingual nerve. The impairment of taste in the area of the glossopharyngeal nerve associated with the spread of the inflammation to the sensory portion of this nerve may be explained by the fact that the ramus communicans, which arises from the geniculate ganglion of the facial nerve or closely posteriorly or even from the large superficial petrosal nerve, may be so strong that the large superficial petrosal nerve appears to be a branch of the facial nerve. The motor fibers of the nervus canalis pterygoidei extend from the facial nerve to the levator veli palatini muscle, the sensory fibers present a connection between the gasserian ganglion and the geniculate ganglion, and the parasympathetic and sympathetic fibers are passing in the palatine nerves to the palate, into the area where the herpes vesicles occurred. The paresis of the facial nerve may be easily explained by the pressure that the inflamed and swollen geniculate ganglion exerted on the nerves. It was the diseased geniculate ganglion exclusively that caused the neurological complications in this rare case.

Zentralbl. Arbeitsmed. u. Arbeitsschutz, Darmstadt

3:33-64 (March) 1953. Partial Index

Physician at the Building-Construction-Site; New Type of Industrial Physician. G. Schäfer.—p. 33.
How Can the Plant Physician Measure the Functional Capacity of the Body? E. A. Müller and K. Karrasch.—p. 37.
Fatal Accident in Course of Distillation of Oil of Turpentine. H. Anders.—p. 40.
*Symptomatic Pernicious Anemia in Chronic Poisoning with Chromium. H. Steim and L. Weissbecker.—p. 42.

Symptomatic Pernicious Anemia in Chromium Poisoning.—The occurrence of hyperchromic anemia with hemoglobin levels of 12 gm. per 100 cc. and erythrocyte counts of 2,500,000, leukopenia, reduced number of reticulocytes (0.2%), Hunter's glossitis, histamine-refractory gastric anacidity, and paresthesia in a workman is reported who had been employed for 25 years in a tannery. His work consisted in sorting of half-dry hides that had been pretreated with basic chromium sulfate. Liver function tests did not reveal any impairment of liver function; the serum bilirubin level was not increased. The sternal bone marrow showed typical megaloblasts. The patient had cachexia and islet-like surface defects in the oral cavity and the esophagus, which, in the presence of large amounts of chromium in the saliva and in the urine, completed the characteristic picture of chronic chromium poisoning. The classic symptoms of pernicious anemia prompted the author to give the patient vitamin B_{12} and/or pteroylglutamic (folic) acid orally or parenterally, but the patient did not respond to this treatment. He then was given continued blood transfusions. Six months after the last blood transfusion the blood counts had become normal. The ulcers in the mouth and in the esophagus were cicatrized and the amounts of chromium in the urine and in the saliva were considerably reduced, but the cachexia and the atrophy of the lingual papillae remained unchanged. There are two possible explanations for the failure of vitamin B_{12} therapy in this patient. The synthesis of the thymonucleic acid from thymidine may have been disturbed directly by the chromium, or vitamin B_{12} may have been inactivated by the chromium as a result of its complex affinity.

BOOK REVIEWS

Psychosomatic Research. By Roy R. Grinker, M.D., Director of Institute for Psychosomatic Research and Training, Michael Reese Hospital, Chicago. Cloth. $3.50. Pp. 208. W. W. Norton & Company, Inc., 101 Fifth Ave., New York 3, 1953.

This book is based on two presidential addresses made by the author before the American Psychosomatic Society and the Chicago Psychoanalytic Society. Dr. Grinker is a well-known authority in the field on which he writes. The book consists of an exposition of his ideas and reflections and gives an over-all view of the field of psychosomatic medicine. In addition, it "attempts to develop a conceptual outline for new programs of psychosomatic research which may be valuable to others." It is justly called "A challenging appraisal of current psychosomatic concepts by one of the most active leaders in this field." The book delineates historical and current concepts, evaluates theoretical formulations and operational procedures, and discusses emperical observations. The author points out that particular psychosomatic expression is not constantly related to a specific emotional constellation. He says (page 61), "I believe that the central focus should not be either on the nature of the somatic functions, which is the subject matter of physiology, or on the psychological processes, which are independently studied by psychologists, psychiatrists and psychoanalysts, but on the forces contributing to psychosomatic unity, its developmental differentiation, and its unhealthy disintegration." There are two chapters on psychosomatic differentiation, which point out the "need for a multidisciplinary attack using many techniques of measurement applied to neonatal organisms and their human and physical environments through the first years of development." There is speculation as to why psychosomatic disturbances are on the increase in our Western culture. A discussion of "integration and field theory" is not too easy for the average person to comprehend. The book is more appropriate for the investigator in psychosomatic medicine than for the practicing clinician.

An Atlas of Skull Roentgenograms. By Bernard S. Epstein, M.D., Associate Radiologist, Jewish Hospital of Brooklyn, Brooklyn, New York, and Leo M. Davidoff, M.D., Neurosurgeon to Mount Sinai Hospital, New York City. Cloth. $15. Pp. 415, with 603 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

This atlas of skull roentgenograms also contains excellent, concise introductions to the different groups of diseases manifest on the plain skull roentgenogram. One of the best features is the excellent coverage of the normal skull and its variations. The usual pitfalls that trap the uninformed are carefully explained and illustrated. There is some repetition, but this assures proper emphasis. The book is divided into 10 chapters covering the normal skull (including infant, childhood, and adult skulls), anomalies and malformations, trauma, infections, brain tumors, gliomas, primary sarcomas, lipomas of the brain, craniopharyngiomas and pituitary adenomas, miscellaneous tumors, tumors of the vault of the skull, and non-neoplastic diseases of the skull. The one notable exception is Caffey's disease, which is mentioned by the authors but is not illustrated. The selection of material for illustration is good, but the quality of reproduction could be improved. There are several typographic errors, which do not seriously detract from the book. One illustration is in a poor position for easy comparison. In short, this is an excellent book for neurosurgeons and roentgenologists, particularly those beginning work in either field, and is of interest to any who see plain films of the skull.

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

Psychiatric Treatment: Proceedings of the Association, December 14 and 15, 1951, New York, N. Y. Research Publications, Association for Research in Nervous and Mental Disease, volume XXXI. Editorial Committee: S. Bernard Wortis, M.D., Chairman, Morris Herman, M.D., and Clarence C. Hare, M.D. Cloth. $9. Pp. 451, with 49 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Ave., Baltimore 2, 1953.

During the past two decades, psychiatric treatment has covered a wide range of procedures, extending from a psychological and social milieu to pharmacological, electrical, and neurosurgical methods. In this symposium on psychiatric treatment, a concerted effort has been made by the contributors to evaluate the effectiveness of various therapeutic modalities. Dealing with individual and group therapeutic procedures and with electrophysiological, pharmacological, and neurosurgical methods, the symposium presents some of the advantages, weaknesses, and omissions in current psychiatric therapy. In summary, the papers indicate that the therapist should be cautious in advancing claims for the exclusive effectiveness of any single treatment or for any single factor influencing treatment in psychiatric practice, for apparently about one-third of patients fail to respond to treatment, one-third get well while under treatment, and one-third are more or less influenced by treatment. This volume should serve to stimulate scientifically critical studies in an important field.

Diabetic Manual for the Doctor and Patient. By Elliott P. Joslin, M.D., Sc.D., Medical Director, George F. Baker Clinic at New England Deaconess Hospital, Boston. Ninth edition. Cloth. $3. Pp. 315, with 55 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1953.

This new edition of an old, standard primer was written and revised by an acknowledged authority on education of the diabetic patient. As in the past, its style is delightfully simple and direct. Dr. Joslin has an intuitive feeling for answering the questions that all patients ask: the result is an absorbing text and a gold mine of information, presented for the most part in language even a child can understand. There are sections on the nature of diabetes and its incidence; the history of major discoveries, including insulin; instructions about food, urine testing, exercise, hygiene, and the use of insulin; diabetic acidosis and hypoglycemic reactions; infections and vascular complications; and heredity, marriage, pregnancy, and children. Occasional question and answer sections and brief, illustrative case reports, photographs, and diagrams amplify the didactic portions and add interest. The size is convenient, the type clear, and the workmanship of fine quality. This manual, one of the oldest, is universally used, chiefly because of the talent and experience of its author.

School Health Problems. By Laurence B. Chenoweth, M.D., Director, Department of Hygiene and Student Health Service, University of Cincinnati, Cincinnati, and Theodore K. Selkirk, M.D., Assistant Professor of Clinical Pediatrics, University of Cincinnati College of Medicine. Fourth edition. Cloth. $4. Pp. 446, with 122 illustrations. Appleton-Century-Crofts, Inc., 35 W. 32nd St., New York 1, 1953.

This college textbook, by authors who have written extensively in the field of preventive medicine and public health, first appeared in 1937. The fourth edition is evidence of its acceptability. The type and page size have been enlarged, and the general format makes for much easier reading, which is an advantage in a textbook designed for students of education and for teachers. Much of the material has been rewritten, reorganized, and supplemented. Sections concerning nutrition, malnutrition, and various factors that influence growth have been completely reorganized and new material added. New chapters on teachers' observations of the school child, dental health, the teaching of health, and the teacher's health are

well handled and are given the prominence they deserve. References at the end of each chapter have been brought up-to-date, and those prior to 1940 have been retained only when they concern important source material. The footnote references are also complete.

This is a satisfactory book for teachers to use as a reference on the school health program and their role in it. It is also valuable for the undergraduate student of education to use, either as a textbook or as a supplement, in college courses dealing with school health activities.

Therapeutics in Internal Medicine. By eighty-four authorities. Edited by Franklin A. Kyser, M.D., F.A.C.P., Assistant Professor of Medicine, Northwestern University Medical School, Chicago. Contributors: M. David Allweiss, et al. Second edition. Cloth. $15. Pp. 830, with 3 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1953.

The second edition of this book, presented in the classical arrangement of chapters according to related internal disorders, provides complete coverage of methods of treatment for nonsurgical diseases. The information is up-to-date and includes generally accepted methods along with some individual preferences of the contributors. There are 12 new sections and 17 new contributors. Like most other symposiums on treatment, the book does not include clinical descriptions of diseases. Only such physiological, etiological, and pathological information as may be required for an understanding of the principles of therapy is presented. The contributors are teachers, investigators, and administrators representing all branches of medicine except the surgical specialties. The preference given to trade names and the use of abbreviations by some authors is disappointing: ACTH is used as a generic name in place of corticotropin; D.T.P. appears as a generic synonym for diphtheria and tetanus toxoids combined with pertussis vaccine; BAL is used in place of dimercaprol; and D.D.T. is used instead of chlorophenothane. This tends to detract from the value of the book to students. The statement on page 601 that "Each tablet of phenylbutazone contains 250 mg." is difficult to reconcile with the currently available tablet sizes of 100 and 200 mg. For the most part the statements on dosage are accurate and detailed. An appendix of useful diets and tables of recommended daily allowances follows a final chapter on symptomatic treatment. A general index at the end appears carefully prepared. The printing and binding are excellent, and the double column format makes for easy reading. On the whole, this book on treatment deserves a prominent place among similar works, and it will appeal primarily to physicians who prefer one restricted to internal diseases.

Recurrent Dislocation of Shoulder. By James A. Dickson, M.D., Chief, Department of Orthopedic Surgery, Cleveland Clinic and Cleveland Clinic Hospital, Cleveland, Alfred W. Humphries, M.D., and Harry W. O'Dell, M.D., Chief, Department of Orthopedic Surgery, Akron Clinic, Akron. Cloth. $4.50. Pp. 158, with 78 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1953.

The number and variety of techniques that have been proposed during the past two decades in treatment of recurrent dislocation of the shoulder indicate the complexity of the problem and the controversial nature of various approaches to treatment. This small monograph begins with a review of the phylogenesis and ontogenesis, including a detailed study of anatomy and dynamics of the shoulder. Pathology is reviewed in detail, although the significance of the opening anteriorly of the shoulder joint into the subscapularis bursa, creating a normal anatomic weakness, apparently was not considered important by these authors. More than 50 principles or variations in operative techniques by as many different authors are listed, and the essentials of the commoner operations are described and illustrated in detail. Some confusion may result when the relatively inexperienced surgeon tries to determine, from the operations described, which of the various procedures would be most suitable for his patient. Treatment of recurrent posterior dislocations is also described briefly.

Epidemics in Colonial America. By John Duffy. Cloth. $4.50. Pp. 274, with illustrations. Louisiana State University Press, Baton Rouge, 1953.

In his research, the author has referred to the original colonial accounts of epidemics; the bibliography of these old records is one of the most valuable parts of the book. He ranks malaria, dysentery, and respiratory diseases as the most destructive, from a social and economic viewpoint, of the plagues that visited the colonists. He believes that smallpox, yellow fever, and diphtheria have been overrated as hindrances to colonial development. There is evidence, however, supporting a difference of opinion on the latter statement; for example, in the chapter on smallpox the author says, "A recent medical history estimates that the introduction of smallpox into Mexico in 1519 wiped out three and one-half million Indians. What was true of South and Central America held good for North America as well." In the same chapter he says, "An epidemic in Annapolis, Maryland, during this same winter of 1756-1757 delayed the convening of the assembly for five months." With regard to diphtheria the author quotes as follows: "In the parish of Hampton-Falls the disease raged most violently. Twenty families buried all of their children. Twenty-seven persons were lost out of five families; and more than one-sixth of the inhabitants of that place died within 13 months." As to yellow fever, the author says that it was one of the deadliest and most terrifying of all the infections that ravaged the American coastal cities. It is well known that during some of the yellow fever epidemics thousands of persons fled to the country to escape infection. The author traces chronologically the periodic waves of infection that passed through the colonies. He tries to show the number of deaths and the length of the outbreak and its effect on social and economic life. These historical accounts of epidemics and the frequent quotations from old reports make the book seem slightly dull, although its historical value is obvious. The author, who was born in England, became an American citizen in 1939 and 10 years later received a grant-in-aid from the American Philosophical Society for research in colonial epidemics.

History of the Second World War, United Kingdom Medical Series. Editor-in-Chief: Sir Arthur S. McNalty, K.C.B., M.D., F.R.C.P. The Army Medical Services. Administration. Volume I. By F. A. E. Crew, F.R.S. Cloth. 50s. Pp. 530, with illustrations. Her Majesty's Stationery Office, P. O. Box 569, London, S.E.1, 1953.

Almost eight years have elapsed since World War II ended, and the first of a series of volumes on the medical history of the war has just appeared. This is indicative of the amount of study of official records, their correlation, and the writing required to prepare an official history. This volume is one of two that will present the administrative phases of the British army medical department history. Beginning in 1933, the military members of the Army Council reviewed the position of the army with regard to its readiness for war. The medical services were unprepared, both in men and in medical equipment, to provide medical care for a large army. In this volume and the succeeding volume, readers will be able to review the conferences and planning and the tremendous tasks of the army medical services in undertaking medical care of the British armies in all theatres of war. In September, 1939, when the British expeditionary force was dispatched to France, the organization of the medical services for war differed little in principle from that in effect in 1918. When it was realized that many changes in the field organization had to be made, the director general of the medical services appointed the Hartgill Committee to examine the organization of the field services and to make suggestions for improvements in the light of the recent experience. This committee met in October, 1941, and two months later issued its report. The committee felt that four cardinal defects were apparent: (1) field medical units were insufficiently mobile, (2) field ambulances did not have adequate means of communication, (3) casualties were not distributed directly to the appropriate units but passed through channels that caused congestion at medical units in the forward areas, and (4) casualties were not afforded the benefits of modern surgery, that is, surgeons were located too far to the rear of divisions and corps. The result was that the Army Council decided to reorganize the

medical services. The task of bringing the new scheme into effect proved long and difficult. Many of the details of how the reorganization was brought about are reviewed in this volume. It was written by F. A. E. Crew under the general direction of the editor-in-chief, Arthur S. MacNalty. The many others who assisted are given due credit.

The Alaska Vagabond, Doctor Skookum: Memories of an Adventurous Life. By John Michael Hewitt, M.D. Cloth. $3 Pp. 284. Exposition Press, Inc., 386 Fourth Ave., New York 16, 1953.

The author of this book, as a young man, was practicing medicine in a small Illinois town when gold was discovered in the Klondike. He and several others formed a company, assembled supplies of food, clothing, and mining utensils, and a small boat and went to Alaska to try their luck in the gold fields. The book is an account of his varied experiences over many years in Nome, Juneau, and other Alaskan settlements. Life was rugged in the wilderness. There were many more persons than there were dwellings available, although anyone in the saloon business seemed able to find some kind of shack in which to sell liquor. The author apparently did not find much gold in Alaska, but he seems to have enjoyed the life and to have done well practicing medicine under the hardships of frontier life. He tells of one hearty man who had a strangulated hernia but refused operation until the incarcerated intestine became gangrenous. The author saved the man's life by resecting a small part of the intestine and bringing the ends out through an opening in the abdominal wall. Much later he operated on this man again, with the aid of a Murphy button, and thus made an end-to-end anastomosis of the intestine. The author had considerable experience in Alaska with bone and pulmonary tuberculosis. He recognized even then the adverse effects of too much sunshine in pulmonary tuberculosis. Some of his operations were performed without much fear of infection, as he believed that interior Alaska was not "friendly toward germs." Later the author spent a number of years as an acting assistant Army surgeon in Alaska. He was retired in 1931 with the rank of major and has since lived in Los Angeles and Hollywood. His account of those adventurous years in the northland has an aura of camaraderie, good fellowship, and kindness to others less fortunate than himself. This interesting book was an ambitious undertaking although probably very enjoyable, for a writer who is now about 86 years old.

Einführung in die chemische Physiologie. Von Professor Dr. Emil Lehnartz, Direktor des physiologisch-chemischen Instituts der Universität Münster i.W. Tenth edition. Cloth. 39.60 marks. Pp. 549, with 119 illustrations. Springer-Verlag, Reichpietschufer 20, Berlin W. 35 (West-Berlin); Neuenheimer Landstrasse 24, Heidelberg; Göttingen, 1952.

This book was prepared as an introductory textbook in biochemistry. It is primarily for students of medicine, but enough reference material is included to make it of value to practicing physicians. The popularity of the book is attested by the fact that it is in its 10th edition. There has been a lapse of 10 years since the ninth edition was published, and consequently the current edition has been thoroughly revised and rewritten. Extensive use has been made of recent American, English, and Scandinavian literature; however, some chapters, for example, that on the inorganic constituents, contain no references after 1941, and the chapter on nucleic acids has only one reference more recent than 1943.

The material is divided into five main parts. The first discusses chemical constituents of the body, including carbohydrates, fats, steroids, proteins, nucleic acids, pyrrole pigments, and inorganic substances. The physical chemistry basic to proper understanding of biochemistry constitutes the second part. In the third part the physiologically active substances of the body are discussed, including vitamins, hormones, and enzymes. The fourth part deals with digestion, absorption, and the intermediary metabolism of carbohydrates, fats, proteins, nucleic acids, and pyrrole pigments. The fifth part includes chapters on the liver, blood and lymph, kidney and urine, and skin and milk.

The book is well written and compares favorably with American textbooks of similar size and scope. There are 119 excellent illustrations. Hormones and vitamins are extensively discussed. The section dealing with physiologically active substances of the body is excellent. The chapter on epinephrine, however, fails to give credit to J. J. Abel for his discovery and isolation of epinephrine as a benzoyl derivative. The chapter on the liver, which has no counterpart in American textbooks, discusses the role of the liver in metabolism of carbohydrates, fats, proteins, and nucleic acid. There is no discussion on the detoxication mechanisms in biochemistry; this would be a worth-while addition in future editions. In all, this is an excellent book and can be recommended as an introduction to biochemistry.

Pigment Cell Growth: Proceedings of the Third Conference on the Biology of Normal and Atypical Pigment Cell Growth. Edited by Myron Gordon. Cloth. $7. Pp. 365, with illustrations. Academic Press Inc., 125 E. 23rd St., New York 10, 1953.

Anyone interested in the subject of pigment, whether physician, biologist, chemist, or physicist, will find this an excellent source book, for it contains papers and discussions read at a meeting "designed to offer to each specialist an opportunity to explore paths of inquiry other than his own—to describe, perhaps explain and certainly to discuss the nature of the pigment cell and its contained melanin." The subject matter deals with the embryologic, genetic, endocrinological, pathological, physiological, and enzymatic problems of melanogenesis, as well as methods of study and treatment of normal and abnormal pigment cell growth in man. The medical research student will, of course, find the entire volume of value; the clinician will appreciate particularly the papers on acanthosis nigricans and those dealing with different phases of melanoma, all written by authorities in the field. An unusual feature is a report of a postconference session for the adoption of uniform nomenclature, during which recommendations were made for definitions of melanoblast, melanocyte, macrophage, and melanophore. The book is well bound, the paper is excellent, and the illustrations are informative and clearly defined. The indexed table of contents preceding each chapter is helpful in locating specific information quickly.

Liver Injury. Edited by F. W. Hoffbauer, M.D., Associate Professor, Department of Medicine, University of Minnesota Hospitals, Minneapolis. Transactions of eleventh conference, April 30 and May 1, 1952, New York, New York. Cloth. $4. Pp. 265, with 96 illustrations. Josiah Macy, Jr. Foundation, 16 W. 46th St., New York 36, 1953.

This book, as its predecessors, is a verbatim report of a conference of 30 leading investigators in the field of liver disease. As in all Macy Foundation conferences, the discussion is centered around five or six informal papers. In this volume the following subjects are presented: infective hepatitis, George F. Mirick; enzyme activity in human liver, John Waterlow; morphology of the liver, M. M. Hans Elias; the mechanism of biliary excretion in mammals, Elizabeth H. Bagley and Allen L. Grafflin; and hepatic histochemistry, Sten Lagerstedt. Much of the material presented at the conference represents work in progress and is still unpublished. The discussion is informal, extensive, and, because of the character of the participants, highly informative. The volume is well illustrated with tables, graphs, and plates, and reads easily. Pertinent references are included. This is an extremely interesting and stimulating volume, which should be read by all those interested in liver disease. Although much of the material is hypothetical and is only of theoretical interest at present, it should prove of interest to anyone with an inquiring mind.

When You Marry. By Evelyn Millis Duvall, Ph.D., and Reuben Hill, Ph.D. With chapters in collaboration with Sylvanus M. Duvall, Ph.D. Revised edition. Cloth. $3.75. Pp. 466, with illustrations. Association Press, 291 Broadway, New York 7, 1953.

This is a textbook written for personal study or for use in colleges and community centers to educate those contemplating marriage or already married. There is a wealth of information for the physician, lawyer, minister, and marriage counsellor. Such knowledge may prevent many broken homes and divorces.

Modern Concepts of Leprosy. By Harry L. Arnold, Jr., M.D., F.A.C.P., Department of Dermatology, Straub Clinic, Honolulu, Hawaii. Publication number 145, American Lecture Series, monograph in American Lectures in Dermatology. Edited by Arthur C. Curtis, M.D., Chairman, Department of Dermatology and Syphilology, University of Michigan, Ann Arbor. Cloth. $3.75. Pp. 105, with 33 illustrations. Charles C Thomas, 301-327 E. Lawrence Avenue, Springfield, Illinois; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1953.

This booklet was written by a dermatologist from the dermatological viewpoint. It presents the subject of leprosy to clinicians who desire more than brief information incorporated in textbooks of medicine but do not need extensive details. After discussion of the historical background and etiology of leprosy, the author considers the basic epidemiology of the disease, concluding that the "open" case is "potentially dangerous, especially for children." Nomenclature employed is that adopted at the Havana Congress on Leprosy (1948), namely, lepromatous and tuberculoid types and, in addition, an indeterminate group that has resisted classification. Diagnosis is based on clinical suspicion and differentiation from other cutaneous lesions and is supported by finding of the etiological agent in the lesion or evidence of nerve damage that can be attributed only to leprosy. Considerable emphasis is placed on the clinical features, histological characteristics, bacteriological and immunologic tests, and the clinical course, which distinguishes the lepromatous from the tuberculoid type of the disease.

Although prior to 1941 chaulmoogra oil and its ethyl esters were widely used in the treatment of leprosy, these proved of relatively little value. The advent of sulfone therapy was a marked advance, although all cases do not respond satisfactorily, either clinically or bacteriologically, and, at times, relapses have occurred in apparently cured patients. In the past, strict isolation of leprous patients in Scandinavia and Hawaii has resulted in a steady decline of the disease. Until more satisfactory epidemiological evidence is provided "it seems unwise to abandon restrictions on the movements and associations of bacteriologically positive cases."

Throughout the text it is evident that the author thoroughly appreciates the social implications of leprosy, but he fails to mention the therapeutic value of nourishing diet and congenial environment. Each of the nine chapters has a number of selected references, almost all of which are duplicated in a comprehensive bibliography, which precedes a subject index. The little volume has a pleasing format and is attractively bound.

Toxicity of Industrial Organic Solvents (Revised in Consultation with Toxicology Committee). By Ethel Browning. Medical Research Council, Industrial Health Research Board, report no. 80. Second edition. Cloth. £1 15s. Pp. 411. Her Majesty's Stationery Office, P. O. Box 569, London, S.E.1, 1953.

The first edition of this book was published in 1937 as a compendium of information about the effects on man and animals of various solvents used in industry. The revised edition summarizes more recent information on previously reviewed solvents and includes data on newer solvents that have come into use since the first edition was prepared. This edition reviews 126 different solvents grouped into 10 chapters under the following categories: hydrocarbons, chlorinated hydrocarbons, alcohols, ethers, esters, ketones, glycols and their derivatives, amino and coal tar bases, and nitrogen and miscellaneous compounds. Discussions of individual solvents cover properties, uses, acute and chronic toxicity to man and animals, lethal and narcotic doses and concentrations by various routes of administration and exposure, symptoms, and effects on the blood and internal organs. There are also data on estimation of the solvent in the atmosphere and in blood and tissues, manufacture, metabolism, differential diagnosis of poisoning, and effect of the solvent on the organism when combined with other solvents. An extensive bibliography complete up to 1948 is presented at the end of each chapter. The design of the book is attractive, and the paper, binding, and printing are of good quality.

Annual Review of Physiology. Volume 15. Editor: Victor E. Hall. Associate editors: Jefferson M. Crismon and Arthur C. Giese. Cloth. $6. Pp. 558. Annual Reviews, Inc., Stanford, Calif.; H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1; Maruzen Company, Ltd., 6 Tori-Nichome, Nihonbashi, Tokyo, 1953.

This is another excellent volume of the series that began in 1939. A remarkable uniformity has been maintained, and the present volume even includes one of the authors represented in the first, namely, Frank C. Mann. There are no chapters on applied and industrial physiology, and the subject of anesthetics, included in the first volume, has since been surrendered to the pharmacologists. Similarly, the subject of physiological psychology has been omitted since the inauguration of an Annual Review of Psychology; it is replaced by one on higher functions of the nervous system. The scope of the volume is enlarged by a discussion of the physiology of vision; this chapter, together with one on thermal receptors, also represents the subject of special senses. Recent developments relating to cortisone and corticotropin add interest to a new chapter by Scharrer on the comparative physiology of invertebrate endocrines. An illustration of the rate at which scientific literature is accumulating is afforded by Krahl's collection (mentioned on page 32) of eight and one-half pages of bibliography on the metabolism of sea urchin eggs. The Annual Review of Physiology, with its decennial index volume, constitutes a priceless key to this literature.

Elsevier's Encyclopædia of Organic Chemistry. Founded by (the late) E. Josephy and F. Radt, Edited by F. Radt. Series III: Carboisocyclic Condensed Compounds. Volume 14, Supplement: Triterpenes. Co-edited by Dora Stern. Cloth. $40; $35 to series subscribers; $30 to set subscribers. Pp. 939S-1345S;50. Elsevier Press, Inc., 402 Lovett Blvd., Houston 6; 155 E. 82nd St., New York 28; 118 Spuistraat, Amsterdam C, Netherlands, 1952.

A relatively small amount of space was devoted to the triterpenes in volume 14 of the encyclopedia, but the recent increase in research on these compounds has necessitated a separate book to bring the data up-to-date. Thus, the literature in this supplement covers the period 1937 to 1946, and with regard to chemical structures the literature is reviewed up to 1952. The book covers derivatives of the pentacyclic terpenes of the α- and β-amyrin groups, lupane and heterolupane groups, the tetracyclic triterpenes, and triterpenes with an unknown number of atom rings.

Functional Disorders of the Foot: Diagnosis and Treatment. By Frank D. Dickson, M.D., F.A.C.S., Clinical Professor of Surgery, University of Kansas School of Medicine, Kansas City, and Rex L. Diveley, A.B., M.D., F.A.C.S., Assistant Professor Orthopedic Surgery, University of Kansas School of Medicine, Third edition. Cloth. $6.75. Pp. 345, with 205 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1953.

The third edition of this book includes the important portions of previous editions and a section dealing with the rigid or spastic flat foot, which in many instances is secondary to a fusion or coalition between the os calcis and the astragalus, or the os calcis and the scaphoid bones of the foot. Thousands of patients have suffered throughout their lives because of this painful condition, and little was known about it until a careful study was made of prospective inductees in the Canadian army during World War II. This book is exceptionally practical and will be of value to every orthopedic surgeon and to physicians in general practice who are willing to take the time and the effort to try to help patients with painful feet.

The Anatomy of the Domestic Animals. By Septimus Sisson, S.B., V.S., D.V.Sc. Revised by James Daniels Grossman, G.Ph., D.V.M., Professor of Veterinary Anatomy in College of Veterinary Medicine, Ohio State University, Columbus. Fourth edition. Cloth. $15. Pp. 972, with 736 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1953.

The book is intended as a textbook for veterinary students and a reference for veterinarians. Equine, bovine, canine, and ovine organ systems are described in considerable detail, with emphasis on comparative anatomy. A short section is devoted to the anatomy of the chicken. The text has numerous illustrations, excellently reproduced and clearly labeled.

QUERIES AND MINOR NOTES

HUMIDITY IN THE HOME

TO THE EDITOR:—*Please discuss inexpensive methods of keeping the air in a house reasonably humid in winter (for prevention of the common cold). Does having plants and flowers in the home help? Why are plants removed from patients' rooms in hospitals?* *M.D., Pennsylvania.*

This inquiry was referred to two consultants, whose respective replies follow.—ED.

ANSWER.—There is no inexpensive method for keeping the air in a house reasonably humid (30% relative humidity) during cold weather, nor is there any evidence that the maintenance of a high humidity will reduce the incidence of common colds. The amount of moisture that would have to be evaporated to obtain a relative humidity of 30% in a house heated to 70 F averages about 1 gal. per room per 24 hours when the outside temperature is 20 F. The use of double sashes or weather stripping at windows and doors will reduce this amount about one-half, and the use of double sashes also helps avoid condensation of moisture on windows under the above conditions. Obviously, the use of plants and flowers helps little in humidifying the air. In houses in which warm air heating is used, automatically controlled humidifiers integrated into the heating system are generally the most satisfactory, but they cost from $200 to $400. With steam or hot water heating, cabinet type humidifiers may be used, at a cost of from $100 to $500. The practice of removing plants and flowers from patients' rooms at night originated from the old, erroneous belief that they utilize oxygen that should be conserved for the patient. Today, plants or flowers are taken away to a cool place at night to preserve them. Unless a clean, cool place is available for storage, they keep better in the patient's room. Strong aromatic flowers should be removed to spare the patient constant olfactory stimulation.

ANSWER.—There is no simple, effective, and inexpensive method for providing added humidity in a house. Contrary to some recent reports, humidity levels during the heating season, except in houses with extremely cold or hot temperatures, are relatively unimportant. It is possibly true that a relative humidity of 70% in a house during the heating season is physiologically advantageous. Certainly, this is true of a 50% level; however, 25% saturation is not disastrous. The disadvantage of ill effects on household appurtenances offsets the physiological value of high humidities. In many houses a relative humidity higher than 35% may be detrimental to paint and plastering, and window panes may ice up to the point of unsightliness and the exclusion of sunshine. In steam-heated houses the slight cracking of release valves may supply abundant humidification. Devices sometimes installed in central hot air units often are short-lasting, flimsily constructed, and unsatisfactory. Water pans attached to radiators are effective in proportion to the amount of evaporation that occurs, but this procedure is not highly efficacious. In houses heated by stoves immediately within the living quarters, the time-honored kettle with boiling water provides satisfactory humidification. The best known, relatively inexpensive humidification device is the electrically powered small sprayer and distributor, of which there are many commercial types. These devices, which require only fairly frequent replenishment of water, are efficacious and generally durable. The simple practice of keeping open or repeatedly opening to a height of a few inches one or more windows increases humidity when the outside humidity is high. Plants and flowers in a household contribute to increased humidification only because evaporation continually takes place from plant surfaces and the top of the soil. A large-sized potted plant resting in a jar of water ordinarily will lead to evaporation of no more than about 1 gal. weekly. This is no great contribution to the humidification of the air of a house. The removal of plants and flowers every night from the room of a sick person is merely a habit carried over from the time when it was believed that flowers consumed oxygen and thus competed with the patient for the room's oxygen supply. Another reason for this practice is the recognition that the odors of flowers may become oppressive in a room that is likely to be closed up during the night. The justifiable reason for removing flowers from the sick room at night is to store them in a cool place to produce freshness for the following day.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

SIGNS AND SYMPTOMS IN PULMONARY TUBERCULOSIS

TO THE EDITOR:—*The National Tuberculosis Association has designated degrees of pulmonary tuberculous disease as measured roentgenographically as follows: "Minimal—Slight lesions, without demonstrable cavitation, confined to a small area of one or both lungs, the total extent of which shall not exceed the equivalent of the volume of lung tissue which lies above the second chondrosternal junction and the spine of the fourth or body of the fifth thoracic vertebra on one side. Moderately advanced—One or both lungs involved, not to exceed in total extent, if slight dissemination, more than the volume of one lung, or if dense and confluent, more than one-third that amount, and total diameter of cavities, if present, not to exceed four cm. Far advanced—Any extension greater than moderately advanced" (Wampler, F. J.: Principles and Practice of Industrial Medicine, Baltimore, Williams & Wilkins Company, 1943, p. 379). I would like to know the different clinical signs and symptoms accompanying each of the three stages of the disease. This information will be used in connection with evaluation and rehabilitation of sick or disabled industrial workers.*

Jose S. Santillan, M.D., Manila, Philippine Islands.

ANSWER.—There is no specific set of clinical signs and symptoms for each stage of the disease. There has been a complete revision of the standards set forth by the American Trudeau Society in the 1950 edition of "Diagnostic Standards of the National Tuberculosis Association" (New York). The standards have not changed enough to make it impossible to answer the inquiry, but it must be emphasized that little can be proved "with requisite certainty" by physical findings. In determining severity of the disease, most weight must be given to roentgenographic evidence, which may be supported by the history, physical findings, and symptoms. Disillusionment with the clinical approach came with the improvement in and increase in use of roentgenograms, especially after World War I. Often, physical examination reveals little while at the same time roentgenograms show infiltrations of considerable extent, sometimes with cavities. On the other hand, many rales and signs suggestive of disease may be present and yet the roentgenogram shows little. It would not, however, be proper to allow these statements to stand without amplification, because the history and preliminary clinical examination are essential for the record, and they supplement the roentgenographic findings as nothing else can. It should be pointed out that careful physical examinations are costly and time consuming and should not be depended on in case finding surveys, nor should large roentgenograms be used for screening purposes. In industry, the physical examination is, of course, imperative and of much more value. With the foregoing qualifications in mind, the classical physical findings occurring in each of the three stages of disease will be discussed briefly.

Minimal.—Most minimal lesions produce no clinical signs or symptoms, especially during their early development. When the lesions become larger or more destructive in character,

humoral changes that are reflected in the blood cell counts and the erythrocyte sedimentation rate as well as an allergic skin reaction occur. When toxicity develops to a certain degree, several changes may occur. The reflex arc from lung to corresponding muscles causes muscle spasm (Pottenger's sign), which may be detected by careful palpation. This sign, although interesting, is generally unreliable in evaluating the amount and character of the underlying lesion, and few physicians are sufficiently experienced to use it. Percussion may or may not reveal changes in note, depending on the size of the lesion and its nearness to the surface. Breath sounds ranging from vesicular to bronchovesicular (rarely bronchial) may be heard but are unreliable as signs, since they may be altered in the absence of active disease. Auscultation may reveal a few crepitant and subcrepitant rales, but during much of the early development of the lesion, and even later, nothing at all may be heard. Whispered voice changes rarely occur with minimal lesions, since the changes that produce them are rarely present. The change in body temperature and pulse is even more erratic. There may be a 1 or 2 degree rise in temperature and a pulse rate as high as 90 beats per minute, but most of the time the early course is symptomless.

Moderately Advanced.—Moderately advanced lesions are more likely to give rise to detectable physical changes. All of the conditions mentioned above may occur, possibly over wider areas than with minimal lesions. Muscle spasm is more likely to be present. Scattered subapical consolidations may be detected on percussion, especially those near the surface, but deep infiltrates may be missed. The voice whisper may take on a more bronchial character as ulceration develops and as bronchi become dilated. Commonly, the body temperature rises 1 to 3 degrees, and the pulse rate may increase to 100 beats per minute, but there may be no change at all. Loss of appetite owing to toxicity may develop, with corresponding loss of weight. Pleurisy may or may not be present, depending on the nearness of the lesions to the surface of the lung.

Far Advanced.—In far advanced lesions, the whole gamut of changes described may occur. Commonly bronchial and sometimes amphoric breathing occurs, with occurrence of corresponding changes in breath sounds on whispered voice as cavities develop. Signs and symptoms accompanying earlier lesions are exaggerated in volume and more extensive in area. Again, they may be partially or entirely absent, even signs of deep cavities. In chronic disease, the signs and symptoms usually become abated, consolidations may be more evident, and the overlying muscles may show atrophy.

The signs and symptoms of the many variations and complications of the disease may be found in textbooks. Needless to say, the subject under examination should be charted as a surveyor would chart new land; such things as deviation of the trachea, apex beat of the heart, and scoliosis should be recorded. It should be emphasized again that signs and symptoms are sometimes deceiving and are only confirmatory when present. They may be misleading as to the exact degree of disease present, and they may be wholly absent. They must be elicited in the light of experience and always interpreted with wisdom and good judgment.

TREATMENT OF VENEREAL WARTS

To the Editor:—*Please suggest treatment for venereal warts; use of podophyllum resin in a 25% oil solution and various antibiotics has proved ineffective.* *M.D., Rhode Island.*

Answer.—If podophyllum resin was unsuccessful in the treatment of condyloma acuminata, electrodesiccation of the lesions following injection of a local anesthetic may be advisable. This should be followed by the use of a dusting powder, such as thymol iodide, and the patient should return at intervals not to exceed two weeks, so that young lesions may be destroyed before they act as a source of reinfection. Sitz baths of potassium permanganate, in a 1:15,000 dilution, may be advisable if many of the warts are removed at one sitting. The sexual partner, a possible source of reinfection, should also be examined and treated if found to have condyloma acuminata.

GENERALIZED PRURITUS

To the Editor:—*I have been treating a patient with rheumatoid arthritis with cortisone acetate since November, 1952. She is presently receiving a cortisone maintenance dose of 50 mg. three times weekly. About mid-January, generalized, severe pruritus developed, which has not responded to the usual applications. Administration of ephedrine by mouth and epinephrine intramuscularly failed to relieve the pruritus. The patient has been seen by an expert skin consultant, who feels that the pruritus may be caused by protein substances in the cortisone. I would appreciate your opinion and recommendations.* *M.D., New York.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Generalized pruritus is not an expected complication of cortisone therapy. The pruritus in this case cannot possibly have occurred on the basis of allergy to protein products in cortisone acetate, because this product contains no protein. Diabetes mellitus of course can be aggravated by cortisone therapy, and generalized pruritus may come about indirectly in this way. Other internal causes of generalized pruritus must also be considered. These include, especially, liver or biliary tract disease, uremia, leukemias or lymphomas, and internal malignant disease. Intestinal parasites, focal infection, arteriosclerosis, and neurological or psychic causes for generalized pruritus have also been claimed. Among external causes of generalized pruritus without appreciable dermatitis, asteatosis is commonest and is the basis of so-called winter itch (Rothman, S., and Shapiro, A. L.: Itching [Pruritus] Chapter 31 in MacBryde, C. M.: Signs and Symptoms, ed. 2, Philadelphia, J. B. Lippincott Company, 1952, p. 713).

Answer.—Cortisone is a pure crystalline material, not a protein, and there are no "protein products" in either cortisone or its vehicles. Presumably, in this instance the cortisone is being given by injection. Cortisone for administration by this route is supplied as a suspension in sodium chloride solution, with a small, unspecified amount of a suspending agent and 1.5% benzyl alcohol. Occurrence of sensitivity to the suspending agents is possible but, insofar as this consultant is aware, has not been reported in the literature or substantiated in any unreported case. The reaction noted in this patient is most likely due to a factor or factors other than the cortisone or its vehicles. Additional consideration of physical, environmental, and emotional factors may be needed to clarify more precisely the basis for this patient's condition.

HYPERTENSION DURING TRANSURETHRAL RESECTION

To the Editor:—*What causes hypertension during transurethral resection of the prostate? In a recent case, alarming hypertension, followed by pulmonary edema, developed near the end of the procedure. Fortunately, recovery was effected by administration of digitalis and oxygen under pressure and the use of other emergency measures for several hours. Blood drawn after the complication occurred showed pronounced hemolysis, but a recheck to determine the blood group for cross matching did not indicate incompatibility. Distilled water was used as the irrigant during the operation.* *M.D., Wisconsin.*

Answer.—The occurrence of hypertension during transurethral resection of the prostate has two possible causes, hemolysis or extravasation into the paraprostatic tissue. Judging from the description, the hypertension in this case evidently was caused by hemolysis. The exact mechanism by which hypertension is produced in such cases is unknown. Oliguria does not always occur with hemolysis, but, when it does occur, it is usually fatal. Hemolysis usually can be prevented by the use of an isotonic sodium chloride solution for distending the bladder during resection.

SIX STILLBIRTHS

To the Editor:—*A woman, 40 years of age, who is Rh negative and who had a negative blood Wassermann test result is four months pregnant. Her husband is Rh positive. Her first child, born 16 years ago, is normal. Six other pregnancies, ranging at from 4 to 8 months of gestation, have resulted in abortions or stillbirths. 1. Whether the husband is homozygous or heterozygous Rh positive, is it possible for this woman to deliver a normal baby? 2. Is corticotropin (ACTH), cortisone, or any other substance of value in blocking antibody formation? 3. How often is an erythroblastotic infant born to Rh-positive parents?* [illegible] *M.D., New York.*

Answer.—Not enough facts are given to permit a definitive answer. No mention is made of tests on the expectant mother's serum for Rh antibodies or of autopsy findings confirming the diagnosis of erythroblastosis fetalis as the cause of the stillbirths. If tests for Rh antibodies on the expectant mother's serum give negative results, some other explanation for the stillbirths should be sought. If all were due to erythroblastosis, the mother's serum would be expected to show Rh antibodies in very high titer. The correlation between Rh antibody titer and the frequency of stillbirths has been discussed by Wiener and co-workers (*Am. J. Obst. & Gynec.* **63**:6 [Jan.] 1952). Assuming that the stillbirths were due to erythroblastosis and that the mother's serum contains Rh antibodies in high titer, the questions may be answered as follows: 1. Only if the fetus is Rh negative is there any chance that the baby will be normal. This would be possible only if the husband is heterozygous. The blood types of the husband's parents should be determined, if possible, and if one is found Rh negative, this would prove the husband to be heterozygous. If the six stillborn fetuses were erythroblastotic presumably they were all Rh positive, and the chance of having six Rh-positive pregnancies in succession if the husband is heterozygous is only 1 in 32. Therefore, he probably is homozygous. Further light could be cast on the question by Rh subtyping, since persons of type Rh_1Rh_2 or type Rh_1Rh_1, for example, are presumably homozygous. If the husband is homozygous, every fetus would be expected to be Rh positive, and the occurrence of another stillbirth is highly probable. 2. The use of corticotropin or cortisone has not been shown of value in preventing the formation of Rh blocking antibodies. Certain investigators have claimed that the use of these hormones antenatally on highly sensitized Rh-negative pregnant women makes possible the birth of viable erythroblastotic infants, who can then be treated by exchange transfusion. The evidence offered in support of this contention is flimsy, and this problem requires further investigation. (For a discussion of the question, the following sources may be consulted: Queries and Minor Notes, *J. A. M. A.* **149**:1515 [Aug. 16] 1952; Queries and Minor Notes, ibid. **151**:697 [Feb. 21] 1953; Hunter, O. B., and Ross, J. B.: *South. M. J.* **45**:732 [Aug.] 1952.) 3. Erythroblastotic babies can be born to Rh-positive mothers. Such instances of erythroblastosis are generally caused by sensitization to the A or B agglutinogen, e. g., in cases in which the mother belongs to group O and the baby to group A or B. The resulting syndrome, which has been designated icterus precox, is generally much milder than erythroblastosis due to Rh sensitization, and spontaneous recovery is the rule. In fact, many of these cases are misdiagnosed as physiological icterus, although a few are severe and clinically indistinguishable from typical erythroblastosis caused by Rh sensitization. Occasionally, erythroblastosis occurs when an Rh-positive mother belongs to one Rh-Hr type and the baby to a different Rh-Hr type, owing to sensitization to one of the Rh-Hr factors other than Rh_0. In rare cases, isosensitization of the mother to unrelated blood factors, such as Kell and S, can cause erythroblastosis.

DETERMINATION OF SEX

To the Editor:—*I would appreciate information concerning the intrauterine determination of sex in the last trimester of pregnancy.* *Samuel E. Dakil, M.D., McAlester, Okla.*

Answer.—There is no dependable method of determining the sex of a child in utero at any stage of pregnancy.

REPAIR OF CYSTOCELE AND RECTOCELE

To the Editor:—*If a patient has a cystocele and a rectocele repaired and suspension of the uterus, should she have bilateral tubal ligation to prevent further pregnancy?*

Walter L. Cawood, M.D., Harlan, Ky.

Answer.—In general, it is desirable to defer such operations until after the childbearing age, but this is not always possible. A simple anterior colporrhaphy or a modified Fothergill procedure of the bladder advancement type for the cystocele is associated with little or no hazard to subsequent pregnancy, but amputation of the cervix is strongly contraindicated, because it is apt to cause miscarriage or, if the pregnancy goes to term, serious dystocia. A properly performed suspension, often combined with plication of the uterosacral ligaments, would not, of course, interfere with subsequent pregnancy. If the cystocele and rectocele are both large and associated with pronounced or complete prolapse of the uterus, many gynecologists will select vaginal hysterectomy combined with correction of the cystocele and rectocele. There are individual variations in both indications and preferred procedures, and it is obvious that in some patients religious considerations must be respected.

DIABETES INSIPIDUS

To the Editor:—*A businessman, aged 60, had a respiratory tract infection in January, and in February he contracted the "flu." After a week, he had urgency and frequency of urination and passed 4 to 5 liters of pale urine per 24 hours, which had a specific gravity of 1.000 to 1.005. In addition, he had a 7 lb. (3.2 kg.) weight loss, anorexia, and weakness. He has unilateral exophthalmos due to an old eye injury, slight blurring of the left disk, suppressed breath sounds over the lower left side of the chest posteriorly, and a blood pressure difference in the two arms, known to be present for many years, 120/80 in the left arm and 160/80 in the right arm. Roentgenograms show an asymmetrical sella turcica measuring 22 mm. in length and 14 mm. in depth. Roentgenograms of the chest show an extensive soft density involving the entire left lower lobe, which is characteristic of pneumonia. The visual fields are normal. Laboratory studies showed a normal blood cell count, erythrocyte sedimentation rate, blood sugar, cholesterol, and sodium levels, slightly lowered blood potassium and chloride levels, and a transient elevation of the nonprotein nitrogen level. The result of a Kahn test was negative, and an electrocardiogram was normal. Beta-hypophamine* ***(Pitressin)****, 0.5 cc., caused nausea as did beta-hypophamine tannate, 0.5 cc. Does a pituitary adenoma cause diabetes insipidus, and is diabetes inspidus likely to appear for the first time at the age of 60? Should x-ray therapy be instituted?*

Harry Parks, M.D., Atlanta, Ga.

Answer.—This interesting case presents problems that need further investigation. The sella turcica is certainly large, and this may be due to a tumor. Diabetes inspidus can be caused by a pituitary adenoma. Diabetes inspidus may appear at any period from infancy to old age. The disease occurred for the first time at age 60 in one of this consultant's patients, who is now 84. Diabetes insipidus may occur following almost any sort of infection, including influenza and certain virus infections. There seems to be no reason why it could not follow virus pneumonia. X-ray therapy does not seem indicated at present. Further study should be made to determine whether a brain tumor is present. The ideal treatment of diabetes insipidus is the removal of the cause when possible. It would be desirable to have a neurosurgeon examine this patient to determine whether the patient has a pituitary tumor that may be removed. X-ray therapy to the pituitary and hypothalamic regions may be of value in relieving the symptoms of this disease, if the cause is a tumor that is radiosensitive and if the changes in the supraoptic hypophysial tract are not beyond repair. This patient has other complaints that deserve further study. The patient complained of urgency and frequency of urination. Diabetes insipidus usually does not cause urgency, although frequency is the rule. Since this patient has a pul-

monary infection, it would be well to rule out a genitourinary tract infection or other genitourinary abnormality by means of pyelograms and prostatic examination. A transient elevation of the nonprotein nitrogen level is rare in diabetes insipidus. This finding may indicate genitourinary complications. Apparently the roentgenogram of the chest is characteristic of pneumonia in the left lower lobe; however, if this process does not clear properly, sarcoid, which also may cause diabetes insipidus, should be considered. Other details appear in the monograph on "Diabetes Insipidus" by Blotner (New York, Oxford University Press, 1951).

THYROID ADENOMA

To the Editor:—*A patient has a rounded mass in his neck about 1 in. in diameter in the region of the thyroid. This mass grew slowly over a three year period. The mass was removed intact, and, on pathological study, was diagnosed as a benign thyroid adenoma. In a case such as this one, should the complete lobe of the thyroid be removed, or should the mass alone be removed, since it had no appearance of malignancy?* *M.D., Kentucky.*

Answer.—The reason for removing solitary tumors of the thyroid is not so much that they may become malignant as that they may be malignant at the time of removal. For this reason, it is essential to remove the tumor in its entirety with a surrounding zone of normal thyroid tissue. Papillary carcinomas, which are the commonest carcinomas of the thyroid, infiltrate the surrounding tissue for some distance, and, as a general rule, a total lobectomy on the affected side is the best treatment for solitary nodules of the thyroid. If the nodules are small and are localized to the isthmus or an upper or lower pole, wide resection, with removal of a great deal of surrounding tissue, constitutes an adequate operation.

HYPOTENSION IN CARDIAC INFARCTION

To the Editor:—*Please discuss the treatment of the hypotensive or shock state in acute myocardial infarction in connection with the intravenous use of fluids and the use of pressor drugs.* *M.D., West Virginia.*

Answer.—Whether to treat actively the hypotensive or shock state associated with myocardial infarction is one of the most difficult decisions to make. In the usual shock state following surgery or injury, a myocardium that is normal or relatively so is being dealt with. Following myocardial infarction the physician is dealing with a myocardium that has been seriously injured and is confronted with a situation in which treatment of the shock state may place a burden on the myocardium with which it is unable to cope. The indication for intravenous transfusion is the occurrence of critical hypotension, which is a relative term. A fall in blood pressure from 200/120 to 100/60 may constitute a more critical situation than a fall from 130/80 to 80/50. The judgment of whether "critical hypotension" is present rests to some extent with the attending physician. The added presence of faintness, sweating, and pallid cyanosis is further indication of the shock state. An added burden is placed on the physician, owing to the fact that so many patients who appear to be in critical hypotension suddenly begin to recover spontaneously. Since the objective of treatment is to raise the blood pressure, the use of whole blood or plasma is the method of choice. Administration of 250 to 500 ml. may be necessary, but if a fair response is obtained with a lesser amount it is wise to interrupt the transfusion. The rate of administration is important. There is a tendency to keep the rate of flow at a very low level to avoid overloading the laboring myocardium; however, if the rate is too slow there will be no pressure rise and the purpose is defeated. A flow of at least 2 ml. per minute seems necessary, and 4.5 ml. per minute is not rare. It must be remembered that when transfusion is decided on, the situation is as bad as it can get, and hazards are accepted that usually would not be considered. Arterial transfusion in this situation has been studied. This maneuver requires special equipment and expert technique. The transfusion must be done under a pressure that exceeds arterial pressure by no more than 10 mm. Hg, and the transfusion pressure must be constantly adjusted to the arterial pressure. In the experimental animal made hypotensive by bleeding, intra-arterial transfusion shows the infused fluid to permeate immediately the renal, coronary, and cerebral vessels. Theoretically this would constitute a great advantage, but in actual practice in myocardial infarction the mortality with its use is exceedingly high. Of course, persons with myocardial infarction who are subjected to this procedure are all desperately ill. The results following intravenous transfusion are not good, but persons in whom the procedure is used are also desperately ill. The use of pressor drugs is not encouraged. They are used, as a rule, only as a last resort and have been found generally ineffective. At best, the result is transient.

PENICILLIN FOR PHARYNGITIS

To the Editor:—*What is the penicillin serum concentration considered sufficient to "cure" a streptococcic pharyngitis?* *M.D., Massachusetts.*

Answer.—Bicillin (dibenzylethylenediamine dipencillin G) and Eskacillin (crystalline potassium penicillin G with added buffer) are both highly effective in the treatment of pharyngitis due to the beta hemolytic Streptococcus. The essential difference between these two agents lies in their speed of absorption and excretion. Bicillin is absorbed and excreted slowly and produces, therefore, prolonged but relatively low, although effective, blood levels. Eskacillin, on the other hand, yields higher levels that are sustained for only a short period. The concentration of penicillin in the serum considered sufficient to "cure" a streptococcic pharyngitis must be evaluated in terms of the susceptibility of these organisms in the test tube. Almost all strains of the beta hemolytic Streptococcus are inhibited by 0.015 to 0.03 unit of penicillin per milliliter. Concentrations in the blood of from 0.1 to 0.15 unit should be adequate. Such concentrations can easily be produced by the administration of crystalline penicillin G by mouth. There is good evidence that therapeutic blood levels need not be present constantly to cure streptococcic pharyngitis. The administration of 150,000 units of buffered crystalline penicillin G orally three times a day or 250,000 units by mouth every 12 hours will cure streptococcic pharyngitis rapidly and, if given for seven days, will completely prevent the development of suppurative complications (Weinstein, L., and Perrin, T. S.: *J. Pediat.* **37**:844, 1950. Weinstein, L., and Daikos, G.: *Am. Pract. & Digest Treat.* **2**:60, 1951).

PURPURA AND PREGNANCY

To the Editor:—*A 29-year-old white married woman had thrombocytopenic purpura at age 22, which lasted for two years and was finally cured by splenectomy at age 24. There has been no purpura since the splenectomy. The patient is one month pregnant. What are the chances of purpura developing during pregnancy or puerperium, and would its effect likely be of a serious nature? What are the chances of purpura developing in the baby? What special precautions should be taken.* *M.D., Canada.*

Answer.—Since the patient has been free from purpura for five years, the chance of a relapse occurring during pregnancy is small. Pregnancy does not appear to be a cause of reappearance of thrombocytopenic purpura following splenectomy. Under these circumstances, one would not expect purpura to develop in the child. Purpura in pregnancy would be serious (over 50% mortality when splenectomy is not performed). There is a possibility of the occurrence of purpura in some babies if the mothers have thrombocytopenic purpura. In the absence of a known case of thrombocytopenic purpura, little can be done to prevent its reappearance. In nonpregnant women corticotropin (ACTH) or cortisone has been used with good results, and administration of calcium lactate and vitamin E (200 mg. daily) has been followed by a remission in some patients.

ELEVATED BLOOD UREA CONTENT

To the Editor:—*Of what significance is the urea content of the blood in the diagnosis of leptospirosis?*

Lynn W. Whelchel, M.D., Miami, Fla.

Answer.—An elevated urea content of the blood in a patient with clinical manifestations of hepatitis, meningitis, or an obscure febrile disorder should suggest the possibility of leptospiral infection, especially if accompanied by leukocytosis and conjunctivitis. It is a nonspecific condition, however, and the diagnosis can be established only by bacteriological or serologic evidence. Occasionally, a patient may have manifestations predominantly of renal involvement and a clinical condition similar to that of acute glomerulonephritis. Elevation of the blood urea concentration may occur as the result of either the nephritis, which is a part of the disease, or extrarenal factors. The renal lesion in fatal cases usually consists of considerable damage to the proximal tubules, with varying degrees of damage to the glomeruli. This may be manifested clinically by albuminuria, hematuria, cylindruria as well as azotemia, with or without edema and usually without hypertension. There may be oliguria, which in severe cases may progress to complete anuria. Extrarenal urea retention may occur as the result of shock in overwhelming infections, marked dehydration accompanying fever or vomiting, or gastrointestinal hemorrhage, which rarely is a complication of this disease. The blood urea concentration is also of prognostic value, most reported deaths attributable to this disease having occurred in patients showing severe renal impairment. A greatly elevated or rising blood urea concentration, with severe or progressing oliguria or anuria, connotes a grave prognostic sign and emphasizes the necessity of appropriate and adequate therapy directed toward prevention of complete renal shutdown and death.

INDICATIONS FOR MASTOIDECTOMY

To the Editor:—*Could you state briefly the present day indications for mastoidectomy?*

M.D., Nebraska.

Answer.—Modern antibiotic therapy and chemotherapy, in adequate dosage, have proved extraordinarily effective in acute suppurative otitis media. As a result, only rarely does persistent acute infection in the middle ear and mastoid require simple mastoidectomy. Two types of lesions may require surgery: (1) those in which inadequate or no previous antibiotic therapy or chemotherapy has been used and in which develop a complication of acute mastoiditis, such as subperiosteal abscess, sigmoid sinus thrombophlebitis, meningitis, suppurative labyrinthitis, brain abscess, or facial nerve paralysis; (2) those due to infection with an organism that is resistant to the available antibiotics and in which the discharge from the ear persists, despite adequate chemotherapy and antibiotic therapy, with the development of the classical signs and symptoms of coalescent mastoiditis. These signs and symptoms are persistent discharge of more than three or four weeks in acute otitis media, sagging of the posterosuperior meatal wall, periosteal thickening and tenderness over the mastoid process, pain, especially nocturnal, low grade fever, or any of the above-mentioned complications due to extension of the infection to an adjacent structure. Roentgenograms are also helpful in determining whether a mastoiditis requiring surgical treatment is present. The radical mastoid operation is indicated in cases of chronic suppurative otitis media of the bone invading type. With few exceptions, these are cases of cholesteatoma formation in the attic or antrum, with a marginal type of tympanic membrane perforation from which the typical flakes of cholesteatoma may be obtained by attic irrigation. In cases in which the cholesteatoma cavity is shallow and easily accessible, it can be rendered dry, odorless, and inactive by occasional attic irrigation. In cases in which the cavity is deep and less accessible, the radical or modified radical mastoidectomy is indicated to exteriorize the cholesteatoma cavity to arrest the continued bone erosion and eliminate the danger of extension to an adjacent structure, with one of the complications mentioned.

TUBERCULOSIS OF ENDOMETRIUM

To the Editor:—*A 24-year-old woman, with one normal child 3 years old, gave birth one month prematurely to a second child. One month following delivery pneumonia developed in the infant, and it died. Postmortem examination revealed miliary tuberculosis. Subsequently the mother had a dilatation and curettage, and the scrapings showed tuberculosis of the endometrium and cervix. She has been receiving a course of streptomycin and p-aminosalicylic acid. The erythrocyte sedimentation rate has dropped to normal values. What further course of action would you pursue?*

M.D., Idaho.

Answer.—The treatment is correct and should be continued, provided the proper dosage is given (1 gm. of streptomycin twice a week and 12 gm. of *p*-aminosalicylic acid a day in two to four doses). It may be wise to alternate streptomycin with dihydrostreptomycin to prevent vestibular damage that may come from long administration of streptomycin or auditory damage that may occur with use of dihydrostreptomycin. Recently the two have been combined so that the toxic effects of each may be minimized. Such a combination is commercially available. The length of time of treatment will vary, but under the circumstances it would be well to continue it for 10 to 12 months. At the end of that time, another dilatation and curettage should be performed, and a careful pathological examination and animal inoculation should be done to see if a cure has been effected. If any doubt exists, treatment with isoniazid may be started, alone or preferably in combination with the other two drugs.

LEFT-HANDEDNESS

To the Editor:—*1. Does left-handedness cause inhibitions that might delay normal development, for example, development in speech? 2. Can it cause later adjustment problems if improperly handled? 3. Is it preferable to allow the tendency to use the left hand to continue or to take reasonable steps early to discourage this tendency? 4. What adjustment should be anticipated and aided if use of the left hand is allowed to continue?*

William E. Russell, M.D., Richland, Wash.

Answer.—1. Left-handedness does not necessarily cause inhibitions that may delay normal development. It may do so when it is not well established so that there is confusion. 2. Later adjustment problems may be caused if left-handedness is improperly handled. 3. It is preferable to allow the use of the left hand if this is the distinctly preferred hand. A single possible exception to this may be the encouragement of the use of the right hand in eating so as to avoid later social embarrassment. This should not be persisted in, however, if it proves difficult. 4. If, as school age is approached, there seems to be confusion in learning to read, with evidence of a tendency to reverse visual images, the special methods for teaching of reading that have been developed for such children should be utilized. The school should be in the position to handle this problem if it arises.

ANTICOAGULANTS FOLLOWING CEREBRAL HEMORRHAGE

To the Editor:—*Would use of any of the anticoagulants be indicated in treatment of a 73-year-old man with severe arteriosclerosis who had a cerebral hemorrhage? The left arm is paralyzed and the speech center is partially affected. The blood pressure was 200/100 shortly after the stroke; however, it now varies between 140 and 150 mm. Hg systolic and between 86 and 90 mm. Hg diastolic.*

M.D., Kansas.

Answer.—There is insufficient evidence in favor of the use of anticoagulants in such patients, and there is a possibility that damage may be done. Until convincing proof is available, it would appear inadvisable to use them.

REMOVAL OF CERUMEN

TO THE EDITOR:—*Often I see patients who have hard, impacted cerumen in their ears, which precludes examination of the tympani membrane. Sometimes, attempts to remove the cerumen with a curette after instilling a few drops of hydrogen peroxide and washing the ears with a syringe fails. Frequent use of a glycerin solution over a period of days does not always succeed in loosening it enough so that it can be removed successfully without damaging the external auditory canal. What is the best method of removal? What is the composition of cerumen? Is there any reason why trypsin, Alevaire (an aqueous solution containing 5% glycerin, 2% sodium bicarbonate, and 0.125% of an alkylaryl polyether alcohol), streptokinase, or streptodornase should not be instilled into the ear to reduce the viscosity of cerumen?* *R. T. Hood Jr., M.D., Craig, Ala.*

ANSWER.—Cerumen is a natural secretion of the ceruminous glands, which together with sebaceous glands and hair follicles are located in the outer membranocartilaginous portion of the external auditory canal. Some persons tend to secrete excessive amounts of cerumen, just as some persons tend to perspire freely. The standard methods for removing impacted cerumen include syringing with water alone, syringing after preliminary softening of the cerumen by frequent instillation of sodium bicarbonate in glycerin or hydrogen peroxide, and the use of an ear spoon or curette. Generally, cerumen can be removed successfully when gentleness, patience, and a correct technique are employed. Fresh cerumen is composed of variable amounts of water, fats, free fatty acid, cholesterol, and lecithin. While there are no known contraindications to the instillation of trypsin, Alevaire, streptokinase, or streptodornase into the external auditory canal, it is doubtful whether they are suitable for digesting or reducing the viscosity of cerumen.

PREMATURE INFANT

TO THE EDITOR:—*What would be the results of giving a 3 lb. (1,360 gm.) premature infant 3¾ grains (0.24 gm.) of caffeine and sodium benzoate and 1 cc. of nikethamide (Coramine) intramuscularly at the same time? Is this overdosage? What would be the correct dose of each for an infant of this weight?*

Edward S. King, M.D., Shelby, N. C.

ANSWER.—The doses of caffeine sodium benzoate and nikethamide suggested for administration to a premature infant of the size mentioned are unquestionably excessive. The results would be an increase in the respiratory and cardiac rates. For certain conditions in premature babies in which cardiac or respiratory stimulation is desirable, authorities have suggested use of nikethamide in a dose of 0.5 cc. and caffeine sodium benzoate in a dose of ⅙ to ½ grain (10 to 30 mg.). The use of these drugs in premature babies has, according to many physicians, doubtful value.

IRRITABLE BOWEL SYNDROME

TO THE EDITOR:—*A patient has spastic colitis in the sigmoid and descending colon, with irritability and frequent contractions. A barium enema revealed normal filling, and no ulcer or filling defects, diverticula, or other organic pathological conditions were noted. The ascending and transverse colon are normal in every respect. Roentgenograms of the upper gastrointestinal tract reveal no evidence of an organic lesion. For six months, gripping low abdominal pains associated with gas pockets in the large bowel and constipation have been experienced. Sensitivity to certain foods is present, and attempts to eliminate the offending foods have been made. What is the current treatment for spastic colitis? Antispasmodics and petrolatum have been used.*

M.D., Florida.

ANSWER.—The term "spastic colitis" is not well chosen, because in persons with this condition there is no intestinal inflammation to account for the symptoms. The condition commonly referred to by this term is better described as the "irritable bowel syndrome," but even this term is not entirely descriptive of the condition. It points, however, to the fact that the condition is in the nature of a part of a general bodily disturbance in which the bowel may play a role. This role may be major, and, when the symptoms are directed largely to the abdomen and intestinal dysfunction occurs, use of one of the antispasmodics is helpful. The main need is for adoption of better habits of eating and living. It is especially important that such patients get adequate rest and restful relaxation and that they eat a nutritious diet, in which a good breakfast and adequate fluid intake are of the greatest importance. At times, lubricants taken orally or as rectal instillations are helpful, but it is best to use them for only a short time to help regulate bowel function.

HEPATITIS COMPLICATING PREGNANCY

TO THE EDITOR:—*A 35-year-old para 2 whose first child was delivered normally had jaundice at the time her second child was delivered (stillborn), in 1949. Symptoms, such as malaise and epigastric distress, began five days before the onset of labor. At the start of labor, the patient was jaundiced. Delivery proceeded uneventfully. Subsequently the patient became critically ill. The jaundice deepened, and the patient became extremely lethargic and was unable to retain food. The icteric index rose to 56, the cephalin flocculation was 4+, and the serum alkaline phosphatase level was 17 Bodansky units. With the usual treatment measures, including administration of glucose intravenously and vitamins B and K and rest, the patient recovered. For the last three years she has been well, except for moderate "gas distress." Results of a recent physical examination were entirely normal. The blood cell count was normal. The total blood protein level is now 6.76 gm. per 100 cc. (albumin 5.55 gm. and globulin 1.21 gm). The cephalin flocculation is 1+. The patient is anxious to have more children. Would pregnancy be dangerous?* *Henry Krochmal, M.D., Meriden, Conn.*

ANSWER.—The history suggests infectious hepatitis complicating pregnancy at term, resulting in fetal death in utero, subsequently clearing on supportive therapy, and, at present, without demonstrable residuals. There is no reason, on the basis of these facts, to suppose that another pregnancy would be dangerous for this woman. Emphasis should be placed on the patient's receiving optimal nutritional levels of protein, minerals, and vitamins, and she should be carefully followed during future pregnancies. Other than these measures, there seems to be no need for special precautions.

BLOOD TRANSFUSION

TO THE EDITOR:—*What laboratory procedures are necessary to determine the need for blood transfusion and the amount of blood required? Is there any objection to administration of the blood of a person from one race to a person from another? What objection is there to the taking of blood from a donor who has partaken of a fatty meal or from persons having high blood pressure?* *M.D., New York.*

ANSWER.—Which laboratory tests are required for determining the need for blood transfusion depends on the condition of the patient and the possible reason for the transfusion. In patients in profound shock or with profound blood loss, transfusion may be necessary before laboratory studies can be done. For certain patients undergoing surgical procedures only erythrocyte and hemoglobin estimations may be needed, while for patients with blood dyscrasias elaborate studies usually are required. There is no major objection to administering blood from persons of one race to those of another, but the possibility of introducing incompatible antigens must be kept in mind; for example, D^u variants may be encountered more frequently in one race than in another, and precautions to detect such variants must be taken in blood typing procedures. It is believed that use of blood from fasting donors reduces the incidence of allergic reactions. Also, the presence of chyle in plasma may obscure cloudiness due to bacterial contamination. If a hypertensive person should have a cardiovascular accident following blood donation, the accident may be charged unjustifiably to the bleeding procedure. Therefore, it is wise to bleed persons with hypertension only as a therapeutic measure.

SCANTY MENSTRUATION AND HOT FLASHES AT 27

To the Editor:—*A patient, 27 years old, complains of having had scanty menstruation for eight months, hot flashes for six months, and nervousness and irritability for five months. The flow has been brighter in color for the last six months. The patient has had no pregnancies and menstruates regularly for 4 days every 28 days. She is 5 ft. (152.4 cm.) tall, weighs 130 lb. (59 kg.), and has fair skin and blond hair. Her blood pressure is 120/80 mm. Hg, her temperature 98.8 F, and her pulse rate 80 beats per minute. She has a congenital cataract. Results of pelvic examination were essentially normal except for the presence of a small cyst on the right ovary. The grandmother entered the menopause at age 30, the mother at age 36, and an aunt at age 32. I would appreciate information regarding treatment. This patient has had three injections of estrogens, with little improvement.* *Loren A. Dunton, M.D., DeLand, Fla.*

Answer.—Management of this case should be started by a complete medical evaluation, and efforts should be made to improve the patient's general health. The height and weight figures suggest that weight reduction is urgently indicated. This should be accomplished by a high protein, high vitamin, low calorie diet. If anemia is present it should be corrected by appropriate iron therapy. The basal metabolic rate should be determined, and small doses of thyroid given if it is normal or below. The patient's habits and social history should be explored to determine possible sources of irritability, nervousness, or conflict, and such factors should be corrected as far as possible. General healthful measures should be outlined, with particular reference to adequate sleep, diversion from routine duties and responsibilities, and appropriate daily outdoor exercise. Small doses of phenobarbital or mild sedatives combined with amphetamine may be a useful addition to the above regimen. Despite the family history of "premature menopause," the occurrence of the climacteric at the age of 27 is so extremely unusual that it should not be considered in this case so long as regular menstruation occurs. Accordingly, sex hormone therapy is not indicated. It should be emphasized that whenever use of estrogens is indicated, inexpensive active preparations for oral use of any desired potency are available; injections should be used only when oral preparations are not applicable. The ovarian cyst should, of course, be examined regularly but need be removed only if it causes pain, if it persists at a diameter of greater than 5 cm., or if a similar cyst appears on the opposite side.

COLOR OF OPERATING ROOM WALLS

To the Editor:—*What is the most suitable wall coloring for surgical theaters in hospitals?*

Niksa Mikajlovic, M.D., Jugoslavia.

Answer.—The color most used in operating rooms in the United States is a soft shade of gray-green. This choice is based on the following principles: the wall color should be restful to the eye, it should have reasonably good light reflective characteristics without glare, and, while being relatively neutral in effect, it should contain a satisfying amount of color complementary to the vivid coloring of the area of visual concentration, i. e., the body tissues.

FREQUENT DESIRE TO URINATE

To the Editor:—*A 72-year-old patient has advanced paralysis agitans (Parkinson's disease). Her chief complaint is a frequent desire to urinate, especially at night. Occasionally at such times, attempts to urinate result only in excretion of a drop or two of urine and sometimes not even that much. The use of trihexyphenidyl (Artane) hydrochloride, sedatives, or hyoscyamus does not relieve this symptom. Is there anything else I can give her?*

M.D., New York.

Answer.—Urinary disturbances occur rarely in paralysis agitans; they are not characteristically associated with the disease. It would be advisable, therefore, to look for other causes of the urinary urgency and frequency, e. g., urinary calculi. If there is no local pathological condition in the urinary tract, the patient described may have one of the rare parkinsonian urinary complaints. Since trihexyphenidyl, sedatives, and hyoscyamus do not relieve the symptom, use of belladonna alkaloids may be tried. A combination that seems to work fairly well is trihexyphenidyl, the belladonna alkaloids, and an antihistaminic drug, such as diphenhydramine (Benadryl) or Thephorin (2-methyl-9-phenyl-2,3,4,9-tetrahydro-1-pyridindene). The use of a muscle relaxant, such as mephenesin, may also be tried.

PERNICIOUS ANEMIA

To the Editor:—*When a satisfactory blood level has been obtained in a patient with pernicious anemia, what is the minimum amount of liver extract or liver extract and vitamin B_{12} that should be given each month to maintain this condition in a case in which it is not convenient to perform laboratory checks on the patient's condition?*

M.D., Illinois.

Answer.—The quantity of liver substance necessary for maintenance of normal blood levels varies among patients with pernicious anemia. Nevertheless, an ample quantity of antipernicious anemia substance for a patient without complications would be supplied by weekly injection of liver extract containing 20 to 30 mcg. of vitamin B_{12}. There is evidence to suggest that the liver extract may be satisfactorily replaced by a solution of vitamin B_{12}. If an erythrocyte count could be obtained even at six month or yearly intervals, subsequent dosage intervals might be predicted on the basis of the level present. Theoretically, four times the weekly requirement may be given in one injection each month; however, some patients do not tolerate well the larger single injection, and there is some question as to whether the single larger quantity of solution of vitamin B_{12} would be as effective as the same amount divided into smaller doses and given oftener.

CONTRACTION IN SCARS

To the Editor:—*Please advise what to do to prevent scar contractures. A flexion contracture of the third and fourth fingers following a burn is developing in a 20-year-old patient.* *C. L. Concklin, M.D., Corpus Christi, Texas.*

Answer.—The only satisfactory treatment of scar contracture is complete excision of the scar and covering of the resulting raw surface with a whole thickness graft of skin from another part. The healing of a raw surface always results in scar tissue formation. This gradually contracts, and particularly so if the original burn or injury involved a flexor surface. The resulting contracture tends to become more marked with growth of the hand, because scar tissue does not grow as normal tissues do. Attempts to overcome flexion contractures by splinting and stretching are futile. The fact that tissue has been lost must be faced, and the only satisfactory treatment is complete replacement of the destroyed tissue.

THE AUSCULTATORY GAP

To the Editor:—*A white woman, aged 84, has had a systolic blood pressure of from 190 to 240 mm. Hg for 10 years; the diastolic pressure remains at 75 to 89 mm. Hg. Several physicians have examined her, and all are puzzled by the fact that, as the mercury in sphygmomanometer drops the sound disappears at 170 mm., and there is silence until it reaches 130 mm., when it reappears; it finally disappears, as stated, at from 75 to 89 mm. What is the significance of this phenomenon? This is the only such patient I have seen in 25 years.* *Dan W. Scott, M.D., Houston, Texas.*

Answer.—This phenomenon is the so-called auscultatory gap. The sound disappears after the initial systolic sound is heard, only to reappear 20 to 40 mm. Hg lower. It is not a rare occurrence in hypertension, focal arteriosclerosis, and aortic stenosis. Its mechanism is not known, and it has no known prognostic value. Its chief importance seems to be that it may cause an error in the systolic reading if the upper reading is missed owing to the gap.